

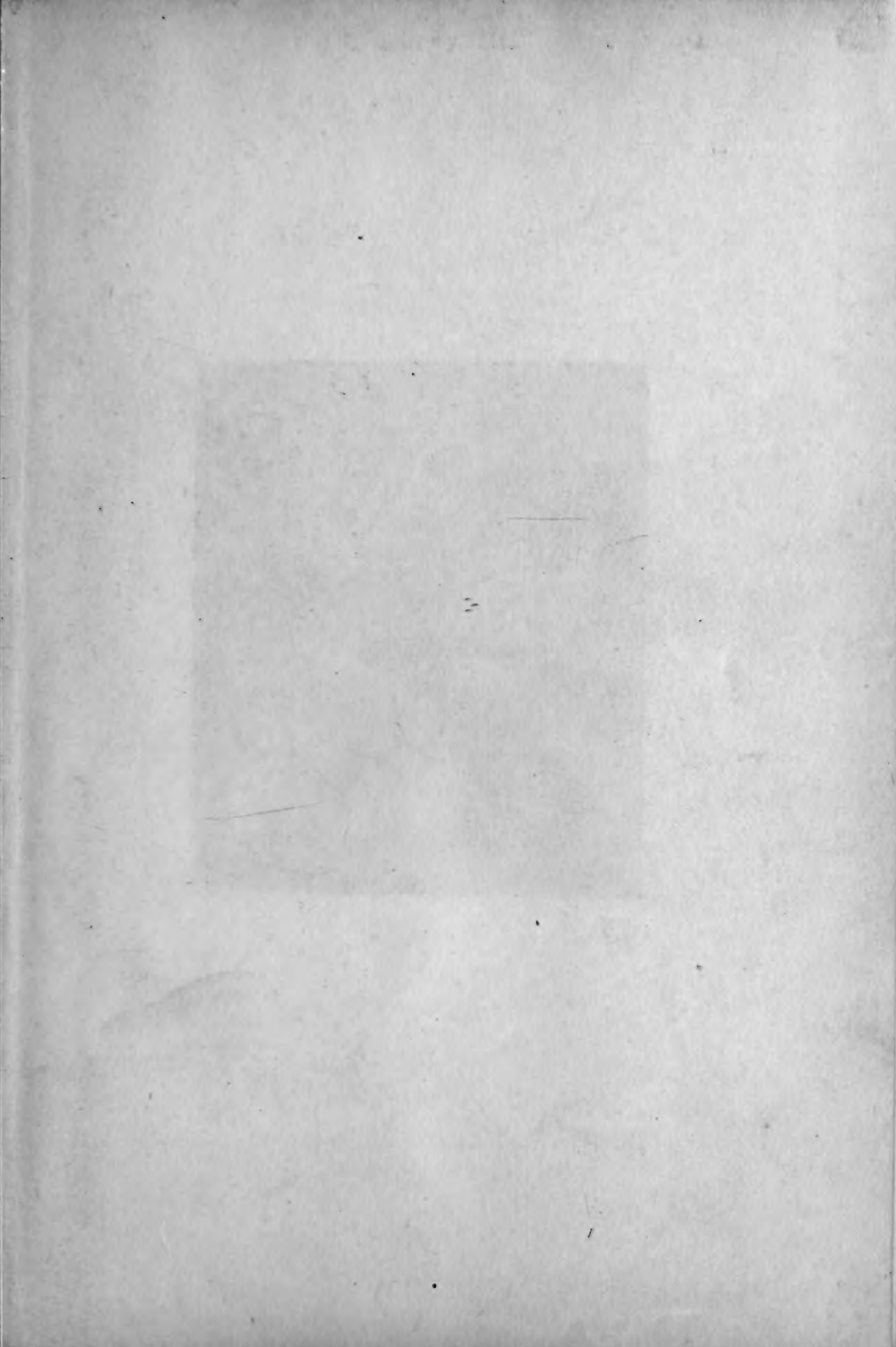
INDIANS OF THE SOUTHWEST

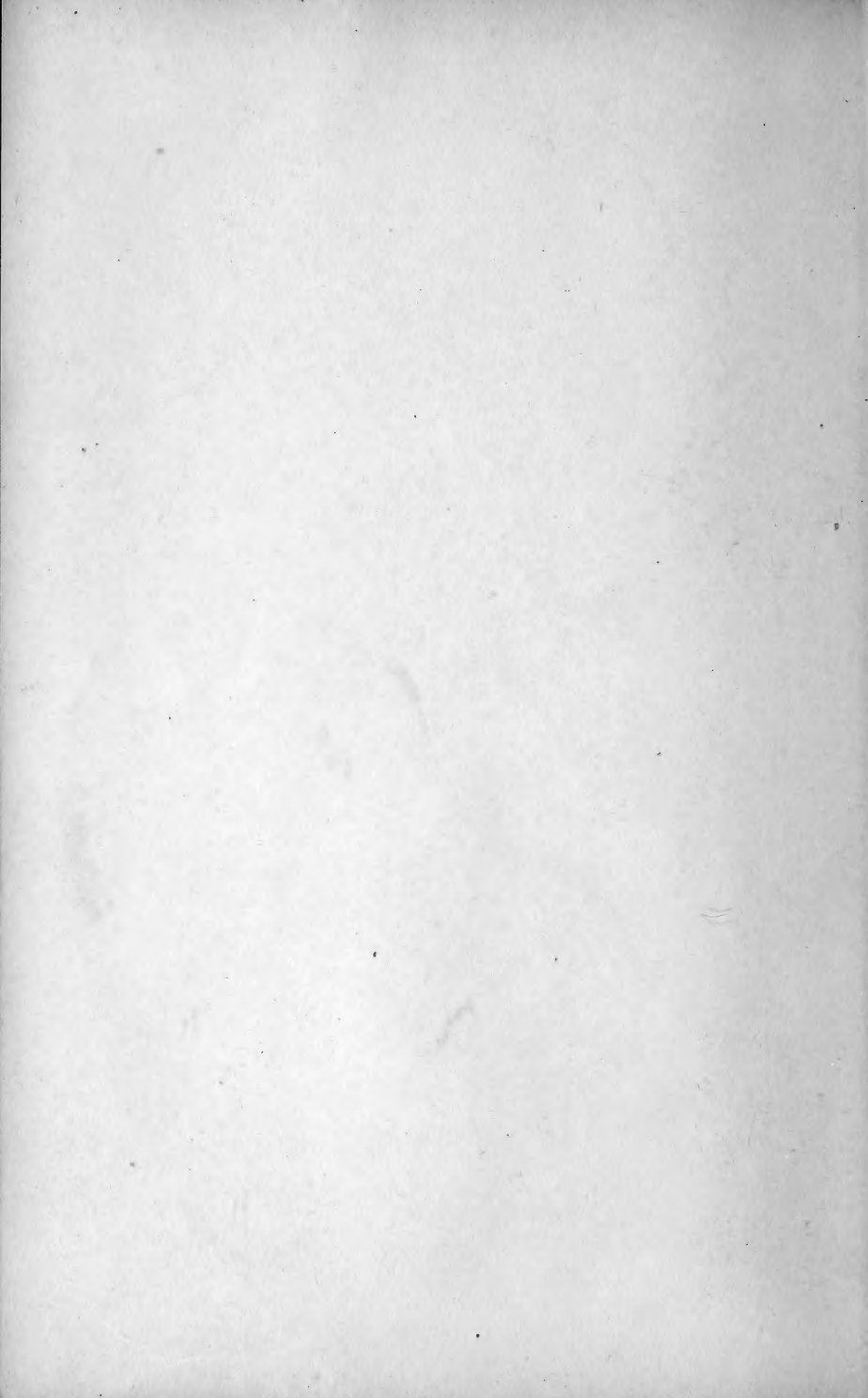


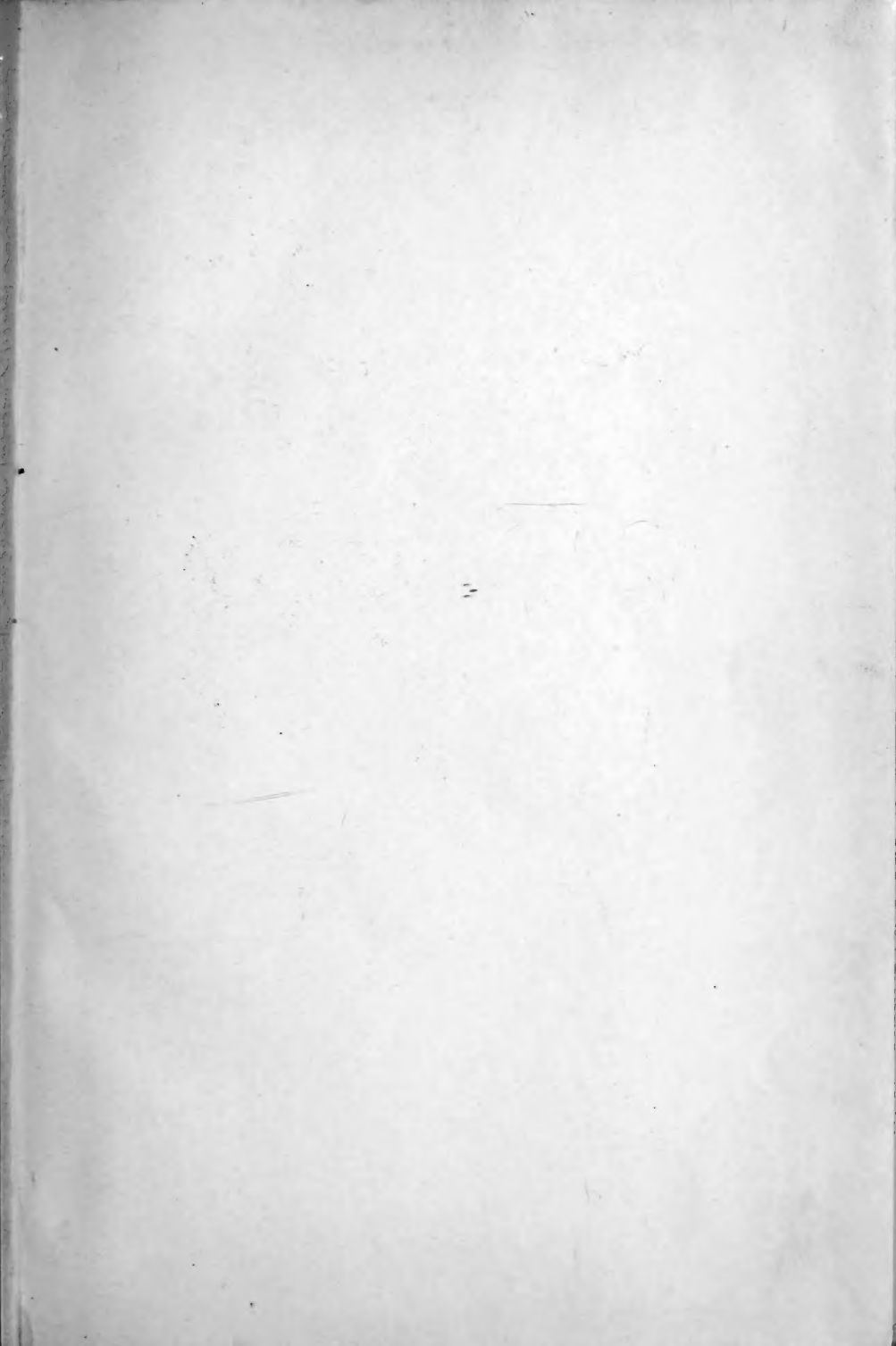
57.1 (7) 8

FOR THE PEOPLE
FOR EDVCATION
FOR SCIENCE

LIBRARY
OF
THE AMERICAN MUSEUM
OF
NATURAL HISTORY









HOPÍ CHIEF.
(Drawn by Howard McCormick.)

LIBRARY
OF THE
AMERICAN MUSEUM
OF NATURAL HISTORY

AMERICAN MUSEUM OF NATURAL HISTORY

INDIANS OF THE SOUTHWEST

57.1(7) 8
21



By PLINY EARLE GODDARD
CURATOR OF ETHNOLOGY

HANDBOOK SERIES No. 2
(SECOND EDITION)

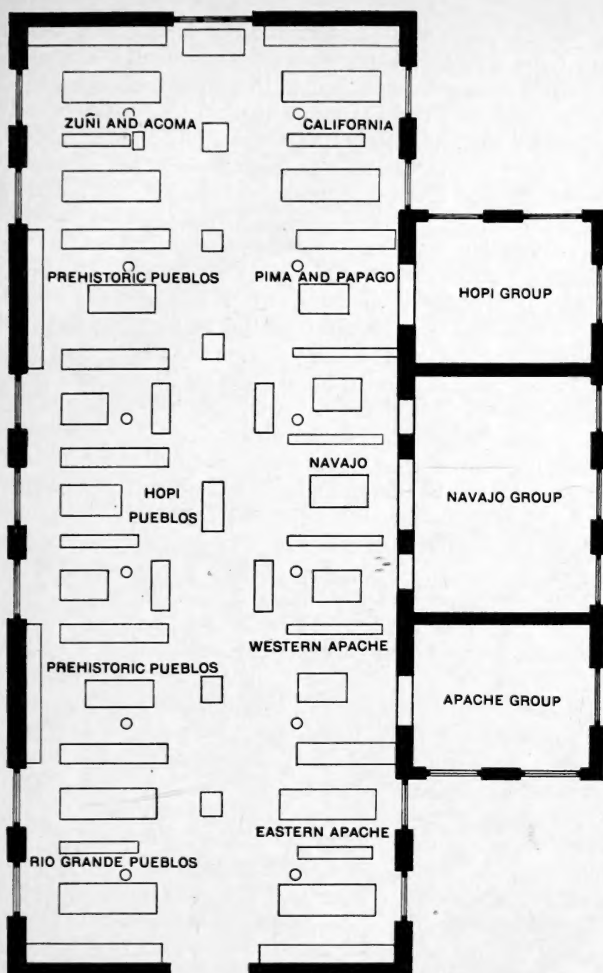
NEW YORK

1921

YERRES
18130
MUSEUM HISTORICAL
YERRES HISTORICAL

21-84625 Dec 14





PLAN OF THE SOUTHWEST INDIAN HALL.

This hall contains the archaeological and the ethnological collections from the Southwest, and temporarily the California exhibit of basketry and general ethnology.

The left side of the hall is devoted to the pueblo dwellers, both ancient and modern. The prehistory is represented by the exhibit in two alcoves. In the first is shown a pottery sequence worked out by Mr. N. C. Nelson in Galisteo Valley, N. M. The case facing this one is filled with pottery from the ruins of Tularosa Canyon on the headwaters of the Gila

River. The collection secured at Pueblo Bonito in Chaco Canyon by the Hyde Expedition fills the remainder of the alcove.

The second archaeological alcove farther down the hall has the Hyde collections from Grand Gulch, Utah, with prehistoric basketry and other textiles of great interest; pottery from Casas Grandes, Mexico, and from Mimbres Valley, New Mexico; a large wall case with collections from the Mesa Verde and Little Colorado; and, in particular, pottery from the Aztec ruin.

The present-day Pueblo villages are represented by three alcoves. First is an exhibit from the Rio Grande Valley of material collected and arranged by Dr. Herbert J. Spinden. In the middle of the west side of the hall is a collection from the Hopi villages, made chiefly by Mr. Voth. At the northern end of the hall are exhibits from Zuñi, secured chiefly by Drs. Parsons and Kroeber; a few Acoma specimens; and an exhibit illustrating the making of pottery.

On the east side of the hall at the northern end is an alcove devoted to California. A large wall case contains a comparative exhibit of basketry. The next alcove contains a small collection from the Pima and Papago. The middle alcove is nearly filled with Navajo blankets, illustrating the various types of weaving. At the southern end are two alcoves; one for the Apache of Arizona and one for the eastern Apache who with their neighbors the Rio Grande Pueblos had considerable contact with the people and culture of the Plains tribes.

On the east in three side-rooms are groups with painted backgrounds. The first represents an Apache camp in the San Carlos Valley. The second, which is now nearing completion, shows a Night Chant of the Navajo. The setting is the Canyon de Chelly in a wall of which is White House, a beautifully preserved cliff-ruin. Within the sacred hogan is shown a sand painting, used for the curing of a sick man. The third group presents the pueblo of Walpi on the first of the Hopi mesas.

The collections in this hall have been obtained chiefly by Museum expeditions and donations. The Hyde Expedition resulted in a great number of archeological specimens, many of which are still in storage. Since 1909 there have been obtained by funds provided by Archer M. Huntington for the study of the primitive peoples of the Southwest, the ethnological collections from the Rio Grande and Hopi pueblos and from the Apache, Pima, and Papago tribes; and the archaeological specimens from Aztec, the Galisteo historic and prehistoric ruins, and from Old Cochiti. A large number of the baskets were donated by Dr. James Douglas; the Navajo blankets represent the generosity of Mrs. Russell Sage and the late J. Pierpont Morgan.

The California collections were acquired by the Huntington Expedition, conducted by Dr. Roland B. Dixon; by the purchase of the Briggs collection of baskets through the generosity of George Foster Peabody; by the work of Miss Constance Goddard DuBois in southern California; and through exchanges.

PREFACE.

ALTHOUGH a great deal of time has been devoted to the study of the native peoples of the Southwest and the prehistoric ruins in that region by many ethnologists and archaeologists our knowledge of them is still far from complete. There are many ruins which have never been visited by a trained observer; the Rio Grande peoples persistently oppose the study of their ceremonial life; and notwithstanding the great number of treatises on the Hopi, there is none of them which gives a satisfactory account of their everyday life and of their social customs and organization.

The author has first-hand knowledge of the Athapaskan speaking peoples only. The accounts given in the following pages of the prehistoric and sedentary peoples have been drawn from published papers by many authors. The most important works on the Southwest are listed at the end of this book and in them will be found the sources of the information here given.

The author wishes to make grateful recognition here of the help given in the preparation and revision of the text by his colleagues in the Museum and by Mr. F. W. Hodge of Washington who has kindly read the proofs. The various illustrations have been credited to the persons who have permitted their use. Their generosity has added materially to whatever interest and value this short account of Southwestern peoples may have.

1913

PREFACE.
(Second Edition.)

During the eight years which have intervened between these editions noteworthy progress has been made. In the archaeological field the restoration of the ruins of the Mesa Verde region has been continued by Dr. Fewkes with the support of the Federal Government. Andover Academy has provided for a thorough examination of the Pecos ruin under the leadership of Dr. A. V. Kidder. Hawikuh, the Zuñi village where Coronado first encountered the pueblo people, has been explored by Mr. Hodge for the Museum of the American Indian. The American Museum has continued the survey of the ruins of the Southwest begun by Mr. N. C. Nelson and has cleared out many of the rooms and reinforced the walls of the great ruin near Aztec. The work at Aztec has been under the immediate direction of Earl H. Morris. In the ethnological field the most noteworthy work is that of Drs. Kroeber and Parsons at Zuñi, Dr. Lowie among the Hopi, Dr. Spier with the Havasupai, and Drs. Parsons and Boas at Laguna.

Epoch-making publications are those of Dr. Kidder on Pajarito pottery, Mr. Nelson on the Galisteo ruins, Dr. Spier on the Little Colorado, Father Dumarest on Cochiti, Drs. Kroeber and Parsons on Zuñi, and Dr. Haeberlin on Southwestern religion.

1921

CONTENTS.

PREFACE	5
PREFACE (Second Edition)	6
INTRODUCTION	11

CHAPTER I.

THE ANCIENT PEOPLES	21
Distribution: San Juan, Rio Grande, Pecos, Gila, Little Colorado. Buildings: Sites, Materials, Ceilings, Doors, Kivas. Types of Ruins: Cliff Palace, Spruce Tree House, Balcony House, Aztec, Pueblo Bonito, Cavate Lodges, Natural Caves. Means of Sustenance: Irrigation, Hunting. Manufactured Objects: Pottery, Baskets, Sandals, Stonework. Disposal of Dead. Religion. Summary. The Basket Makers.	

CHAPTER II.

THE PUEBLO DWELLERS	58
Exploration: Cabeza de Vaca, Marcos de Niza, Coronado. The Conquest. The Rebellion. Distribution in 1540: Cibola, Tusayan, Acoma, Tiguex, Salinas, Quirix, Tanos, Cicuye, Jemez, Tewa, Rio Grande, Hopi, Zuñi. Habitations: Arrangement of Buildings, Building Material. Shelters. Kivas. Food: Agriculture, Preparation of Food, Hunting. Dress. Industrial Arts: Pottery, Basketry, Weaving. Decorative Art. Social Organization. Social Customs. Political Organization. Religious Practices. Rio Grande Ceremonies: Sia Rain Ceremony, Festivals. Zuñi Ceremonies. Hopi Ceremonies: The Snake Dance. Religious Beliefs.	

CHAPTER III.

THE VILLAGE DWELLERS	121
The Pima and Papago. Houses. Clothing. Basketry. Social Organization. Games. Religion.	

CHAPTER IV.

THE CAMP DWELLERS	140
Distribution: Athapascan, Yuman. Shelter. Food Supply. Clothing. Industrial Arts: Pottery, Basketry, Weaving, Silverwork, Beadwork. Social Organization. Social Customs. Political Organization. Games. Religion: Ceremonies, Beliefs.	

CHAPTER V.

CONCLUSION	181
BIBLIOGRAPHY	184
INDEX	186

MAPS AND ILLUSTRATIONS.

Hopi Chief	<i>Frontispiece</i>
Plan of the Southwest Indian Hall	3
Topographical Map of the Southwest	12
Distribution of Forests and Rainfall	13
Culture Areas in North America	14
Villages and Tribes of the Southwest	15
Square Watch Tower, San Juan River	26
Diagram of Typical Small Ruin	27
Portion of Masonry Wall, Chaco Canyon	28
Roof, Spruce Tree Ruin	29
Kiva at Spruce Tree Ruin	30
Cliff Palace	32
Aztec Ruin on the Las Animas, New Mexico	35
Pueblo Bonito Ruin	37
Prehistoric Coiled Ware	41
Tularosa Pottery	42
Pueblo Bonito Pottery	43
Prehistoric Pottery, Lower Gila River	43
Types of Prehistoric Sandals	45
Yucca Fiber Bag, Grand Gulch	46
Prehistoric Implements Used in Weaving	48
Objects of Wood and Bone	49
Stone Axes and Hammers	50
Polished Stone Chisels	50
Prehistoric Rattle and Flageolet	51
Mummy Wrapped in a Cotton Robe, Grand Gulch, Utah	52
Sandals of the Basket Makers	56
Pueblo of Walpi	66
Pueblo of Zuñi	67
Floor Plan of Hopi Living Room	69
Kiva, San Ildefonso	73
Floor Plan of Hopi Kiva	74
Roof of Hopi Kiva	75
Hoes and Throwing Stick	78
Hopi Robe	82
Woman's Dress, Acoma	84
Santa Clara Woman Firing Pottery	86
San Ildefonso Pottery	87
Hopi Baskets	89
Hopi Pottery	90
Hopi Prayer Offerings	102

Clowns Climbing Pole. Taos	105
Deer Dance. Nambe	108
Hopi Kachina Dolls	109
Snake and Antelope Priests	110
Snake Priests Dancing with Snake	111
The Marau Society Dancing the Mamzraute at Mishongnovi	117
A Pima Dwelling	124
Pima Trays	128
Pima Storage Basket	129
Pima Plaited Basket	131
San Carlos Apache Woman Building a House	144
White Mountain Apache House	145
Navajo House	146
Jicarilla Woman Gathering Mescal	148
Mescal Knife. San Carlos Apache	149
Mescalero Girl in Native Costume	152
Navajo Man	153
Jicarilla Tray	155
San Carlos Apache Tray	155
Mescalero Unfinished Basket	156
Jicarilla and San Carlos Apache Baskets	157
Navajo Woman Spinning	159
Navajo Woman Beating Down the Woof with a Batten Stick	160
Navajo Belt Loom	161
Navajo Chief Blanket	162
Navajo Blanket	163
Hoop and Pole Game. Apache	170
The Apache Ceremony for an Adolescent Girl	173
Jicarilla Relay Race	174
Petroglyphs. San Juan Valley	182

INTRODUCTION.

The region which is called the Southwest in the title of this book is a natural geographical division lying south of the higher and more definite ranges of the Rocky Mountains. It is drained by the upper portion of the Rio Grande River and its tributary the Pecos, and by the Colorado River and its three main eastern branches, the San Juan, the Little Colorado, and the Gila. There are considerable ranges of mountains between the Rio Grande and the Pecos, and mountain masses north of the San Juan and at the head of the Gila. Mountain peaks somewhat isolated, such as the San Francisco Peaks (12,794) and San Mateo (11,389), rise here and there. The Continental Divide, however, is for the most part unmarked by any definite elevation.

The northern portion of the region is a high plateau with an average elevation of about 6,000 feet. This plateau is so sculptured that generally speaking the walls of both the elevations and the depressions are vertical. Instead of rounded hills and V-shaped valleys, we have for the most part flat-topped mesas and sheer-walled canyons. South and west of the watershed between the Little Colorado and the Salt, the country decreases in elevation very abruptly and then slopes to the low lying desert at the mouth of the Gila.

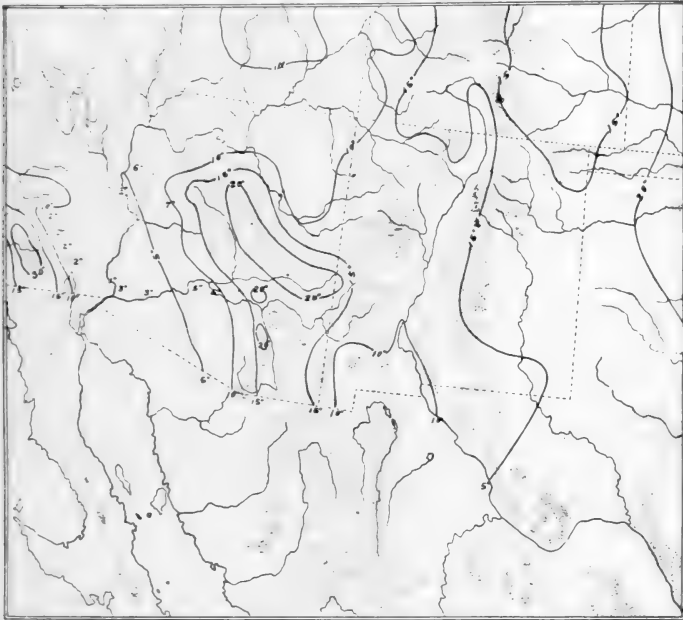
Over much of the region evidences of considerable volcanic activity are found, consisting of extensive lava fields, dikes of projecting lava which can be followed for many miles, numerous extinct craters, and hot springs still active.

The rainfall varies greatly according to the elevation, but is greater than is generally supposed. At Flag-



Topographical Map of the Southwest, Showing the Mountain Ranges and an Elevated Plateau in the Middle.

staff it is twenty-four inches and over the greater portion of the country as much as 10 or 15 inches. Along the lower Gila, however, it is as little as 1 or 2 inches, resulting in a veritable desert.

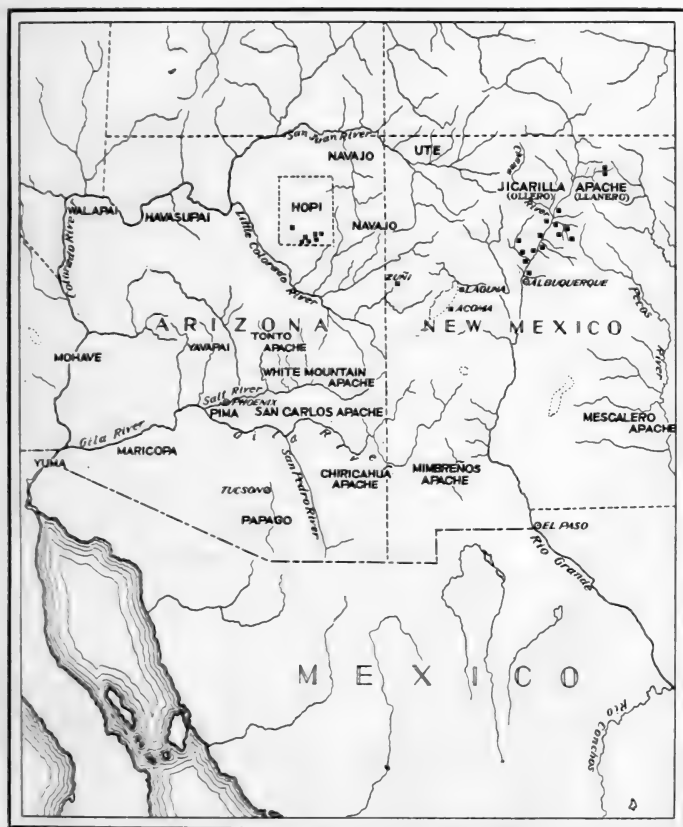


Distribution of Forests and Rainfall. Shaded Portion Indicates Timber and the Black Lines Rainfall Areas.

The vegetation, needless to say, varies with the altitude and the rainfall. On the higher mountains and the more elevated plateaus are great forests of yellow pine with occasional Douglas spruce. The middle elevations are clothed with smaller trees, such as the piñon, a dwarf pine, cedar, juniper, and cypress. Small-growing oaks and mesquite bushes are also



CULTURE AREAS IN NORTH AMERICA.



Villages and Tribes of the Southwest.

characteristic of the lesser elevations. The river banks generally are lined with cottonwoods and sycamores, giving the general appearance of verdure.

There are other members of the vegetable kingdom more characteristic of the Southwest than the trees enumerated above. Among these may be mentioned the century plant, or agave, the mescal of the Spanish-speaking residents, and the several species of yucca. The more arid portions of the country, the unwatered upper region and the low desert regions have many varieties of cactus, which are able to maintain themselves through a drought and make use of the occasional rains. During the rainy season of August, flowers are abundant and general verdure is common.

The aridity of the region is more impressive in regard to the atmosphere itself. The snows of winter vanish into the air leaving little surface water or mud. During most of the year the small amount of moisture in the air enables one to see for a long distance and observe small details; in other words, atmospheric perspective is largely wanting. This is at first very bewildering to the visitor who has been accustomed to judge distance by the amount of intervening haze. While the distant mountains are not obscured, the atmosphere does impart to them varying shades of blue which combined with the varying local color of the landscape and the often gorgeous dawns and sunsets make the Southwest extremely colorful.

The animals of the Southwest were chiefly those characteristic of the western United States in general. There were occasional visitors from Mexico, such as the macaw, the peccary, and possibly the jaguar. Of economic importance were the turkey, quail, deer, antelope, rabbits, and wood-rats. Elk occupied the region but were not easily killed. The bison, on the other hand, were

only available when trips were undertaken to the region east of the Pecos, which, according to an old saying, the buffalo did not cross.

The natives occupying the Southwest are representatives of the race known as American Indians. Their common characteristics are: a warm chocolate color, straight black hair, brown eyes, wide faces, and high cheek bones. In other respects the Southwestern peoples exhibit considerable variety. The accompanying table shows the Maricopa, averaging 68.8 inches on the one hand, and the pueblo peoples on the Rio Grande averaging a little more than 64 inches.

	Inches		Inches
Maricopa	68.8	Walapai	66.3
Yuma	67.7	Isleta	66.2
Pima	67.3	Mescalero Apache	65.9
Mohave	67.5	Southern Ute	65.6
Jicarilla Apache	67.4	San Juan	65.3
Navajo	67.4	Acoma	64.9
White River Apache	67.3	Taos	64.6
Papago	67.2	Hopi	64.4
Havasupai	67.1	Zuñi	64.3
Yavapai	67.08	Jemez	64.05
San Carlos Apache	66.7	Sia	63.9

The proportion of the length to the breadth of the head has been much used in describing and classifying races. The skulls recovered from the "Basket Maker" burials of southern Utah are extremely long and narrow. Of the modern peoples of the Southwest only the Pima and Papago and some of the people of Taos have heads of this shape. The heads of the remainder of the prehistoric people; those of the present-day Maricopa, Yuma, Mohave; and most of the sedentary people, the

Hopi, the Zuñi, and the Rio Grande Pueblos generally are moderately broad. Only the Apache, the Havasupai, and the Walapai have heads which are exceedingly broad as compared with their lengths.

It is apparent then that the inhabitants of the Southwest are of two, perhaps three, types which have either migrated to that region from different places and at different times, or which, after long residence in the Southwest, have resulted from the breaking up of a previously uniform type. These types, having become established by either of the methods mentioned above, have remained distinct in consequence of a cultural, social, and political grouping which has prevented extended intermarriage.

The languages spoken in the Southwest present similar variations and lead to analogous conclusions. Two of the larger linguistic stocks of North America are represented in the region.

The Navajo and the various Apache tribes, together constituting fifty-eight percent of the population, are Athapascan speaking. The dialects they speak do not differ greatly from each other and, taken together, have certain characteristics in common which are not found elsewhere. Related languages are spoken in Alaska and over much of western British America, and along the Pacific coast in Oregon and northern California.

The Hopi, in culture a typical pueblo people, speak a Shoshonean language linking them to the Ute and related tribes who occupy the Great Basin to the north. The Pima and Papago are closely connected linguistically with the inhabitants of the Mexican Sierra. The tribes inhabiting western Arizona are chiefly Yuman in speech, related in that respect to certain tribes in southern California and near the Gulf of California. On the other hand, there are three linguistic stocks in

the Southwest which have no known connections elsewhere. These are the Zuñi language, spoken at the pueblo of that name, and in the outlying villages; the Keresan dialects, spoken at Acoma and certain villages in the Rio Grande drainage; and the Tewan languages, spoken along the Rio Grande and at one of the Hopi villages.

It should be noted that recent studies have established the existence of a remote but definite linguistic relationship between the Shoshonean languages represented in the Southwest by the Ute and the Hopi, and the Piman languages, which include the Pima, Papago, and the dialects of northwestern Mexico. Included in this larger group, - known as the Uto-Aztecan, is also the Nahua which is the language of the ancient Mexicans or Aztecs.

The obvious conclusions from these linguistic facts are that peoples speaking various languages have invaded the Southwest at various times. The assumption is that people speaking the Uto-Aztecan languages occupied the Great Basin, the western part of Arizona, and the Sierra of Mexico in early times. Free communication between the Hopi and the Ute of the north, and the Pima and other tribes of the south must have ceased many generations ago, either because the territory between them was uninhabited or because its inhabitants were alien in speech. The considerable difference between the Piman and the Shoshonean languages under average circumstances would only result after many centuries of separation. It is also proper to assume that the pueblo peoples mentioned above as speaking distinct languages, the Zuñi, the Keres, and the Tewa, have been in the Southwest for a very long time. The Athapascan-speaking Navajo and Apache are by no means recent comers if one is judging in terms of history and of the

European occupation of America. The evidence indicates that all the Athapaskan-speaking tribes of the Southwest once formed a single community and developed a common language. Since that time a wider distribution or impeded intercourse has resulted in this once common language being broken into fairly distinct dialects. This appears to have taken place prior to the Spanish period which began in 1539.

When our knowledge of their physical characteristics has been increased and made available by publication it may be possible to collate it with linguistic and cultural conclusions and determine the early movements and amalgamations of the Southwestern peoples.

CHAPTER I.

THE ANCIENT PEOPLES.

The information here presented concerning the culture of the primitive peoples of the Southwest falls into two classes. Knowledge of a people obtained by direct observation and by intercourse with them is called ethnological, while that which is secured from a study of their houses and manufactures left after they have disappeared is called archaeological. There are large regions in the Southwest where there are plentiful ruins which have been unoccupied since the first arrival of Europeans in 1539. Whatever we know concerning the culture of these ancient peoples must be either directly observed or inferred from the relation which these ruins and other relics bear to each other and to similar structures and objects still in use by living peoples.

Much has been lost beyond any possibility of reconstruction. We know nothing of the language spoken by these peoples; their social customs can only be guessed at in certain minor particulars; and their religion in small part only is inferred from certain objects that must have had a ceremonial use. While much has been lost, an increasing amount has been learned from a systematic examination of these ruins and their contents.

Because large regions have been unoccupied for centuries we need not suppose the inhabitants perished utterly. It is more probable they moved to other localities where they were found by the Spaniards. Whence the ancient peoples came we do not know nor when. They may have been in this region for several thousands of years. We do know that after they came they learned to construct large community houses and to make highly decorated pottery.

DISTRIBUTION.

As might be expected in a semi-arid region, the agricultural population in prehistoric times was concentrated at the higher elevations where the rainfall was the greatest and in the river valleys where irrigation could be easily practised.

San Juan. One of the most important regions anciently occupied was that watered by the northern tributaries of the San Juan River. These streams are fed by the snows of the mountains of southern Colorado and Utah. At some distance from their sources they are confined in sheer-walled canyons which unite with each other as they approach the San Juan, which enters the Colorado above the Grand Canyon. Some of the ruins are on the tablelands between the streams, others are at the heads of the canyons, and many are in the canyons themselves either on their floors or under their overhanging walls. Cliff Palace and Spruce Tree House are two of the largest and best known ruins standing under cliffs. In the valley of the Animas is a very large ruin in the open valley near the town of Aztec.

In Chaco Canyon, there is a cluster of eleven large ruins which evidently represent an important political group of prehistoric villages. One of these, Pueblo Bonito, is hardly surpassed in size and interest anywhere. Canyon de Chelly, which joins Chinlee Valley, has many ruins both on the floor of the valley and under the walls.

Rio Grande. On the western side of the Rio Grande Valley are many large ruins. Some of them are in the valley of the Rio Chama; many of them are on the mesas of the Pajarito tableland south of it; and others are in the canyon of the Rito de los Frijoles. In the valley of the Rio Grande itself and along its eastern

tributaries, are ruins older than the Spanish era, others which were deserted prior to and during the rebellion, 1680-1682, and a number of villages which have persisted until the present day.

Pecos. The pueblo of Pecos on the river of that name was occupied until 1838. In prehistoric times there were many pueblos for 40 miles along the valley. Between the Rio Pecos and the Rio Grande there are many ruins and evidences of former occupation by a sedentary, pottery-making people. Some of these ruins, notably those known as Abo, Quarai, and Tabira or Gran Quivira, were still occupied under Spanish rule.

Gila. Along the upper tributaries of the Gila and Salt Rivers there are evidences of a dense population which occupied cliff-dwellings and community houses standing in the valleys. These were built of stone. Farther down these rivers, the houses were built mostly with earthen walls; only mounds of earth and boulders marking the outlines of the walls remain. Not far from Florence, Arizona, near the Gila River is a large and noted ruin called Casa Grande. A number of houses were surrounded by a defensive wall. These are of solid adobe construction and resemble ruins in Chihuahua, Mexico, known as Casas Grandes. The Rio Verde which flows into the Salt from the north has a great number and a great variety of ruins in its valley which seems to mark the western limit of this prehistoric culture.

Little Colorado. There remains another large tributary of the Colorado which flows through the heart of the Southwest, the Little Colorado. Within its drainage are many historic ruins, deserted villages with old Spanish churches, and the still inhabited villages of the Hopi and Zuñi.

BUILDINGS.

The character of the buildings, ruins of which are found in the Southwest, depended in part upon the period in which they were built and in part upon the topography and other geographical conditions.

In widely separated localities are ruins of small structures mostly subterranean with walls of adobe supported by slabs of stones around the base on the outside. These houses were circular or oval, not rectangular, and appear to have had a conical roof of poles and thatch or earth. The character and style of the pottery indicate that these houses are older than the large community buildings but that they belonged to the sedentary pueblo peoples rather than to the ancestors of the nomadic peoples now living in the Southwest.

There are also widely scattered ruins consisting of houses of a few rooms. Those in the Mesa Verde region have the rooms arranged on three sides of a small plaza in which is a circular room nearly or quite underground. There is an underground passageway from one of the rooms of the house leading to this circular chamber, which is called by archaeologists a kiva. That the buildings belonged to a period older than that in which large community houses were built is indicated by the character of the pottery which is but crudely decorated. They may come next in order after the house in which slabs were used in connection with adobe walls.

Sites. The building sites chosen by the prehistoric people seem to have depended in part upon the topography of the particular locality and in part upon the needs of defense in a given area. Few available caves seem to have been overlooked. The overhanging cliffs protected the building from rains and most such situations were easily defended. The size of the buildings is of course limited by the extent of the cave. Many

of the pueblos were built on the valley floors or on open plains, little thought being given to the ease with which the enemy might approach. But because of their peculiar arrangement and construction such buildings were often easily defended. They were built either in the form of a rectangle or a semicircle around a court from which they were terraced back toward the outer wall which had no openings low enough to be reached by the enemy. Some of these, like Aztec on the Animas and Pueblo Bonito in Chaco Canyon, had hundreds of rooms. A great number of villages were placed on the tops of mesas the walls of which were steep enough to furnish a considerable degree of protection. Puyé, one of the largest ruins on the Pajarito Plateau, is so situated. In many cases a location was chosen just above the head of a canyon, on the rim, at each side and at the end of which the houses were built, making it impossible for the enemy completely to surround the settlement. There are ruins in many places which both from their character and their location seem to have been built solely for defense. These are round or square towers of considerable height which have a few small openings adapted by their size and location for the observation of the enemy and for the discharge of arrows. They are usually placed so as to command a wide view of the surrounding country, often being perched on the top of a boulder or block of stone.

Materials. The material employed in building apparently depended upon what was available in the particular region. In the San Juan drainage, the sandstone was plentiful and not difficult to work and on the Pajarito Plateau there was tufa cut with ease. As a result, in both places there are walls built of well-dressed blocks of stone. In other localities the stone is in thin strata and was broken off and dressed only

enough to make the surface of the walls even. Where the walls were thick the two surfaces were often well built and the intervening space filled roughly with any available material. Some of the walls show regular courses of large stones alternating with courses of smaller



Square Watch Tower. San Juan River.

(Courtesy of Dr. Prudden.)

ones producing a banded effect, evidently intentionally decorative.

Along the lower Gila and Salt Rivers bedrock as a source of building material was not available and round river boulders were used, the greater part of the

walls being composed of adobe, the peculiar clay so abundant in the Southwest. The walls of Casa Grande seem to have been made by pouring moist clay and gravel into forms as concrete walls are now made. When a section of the wall had hardened, the forms

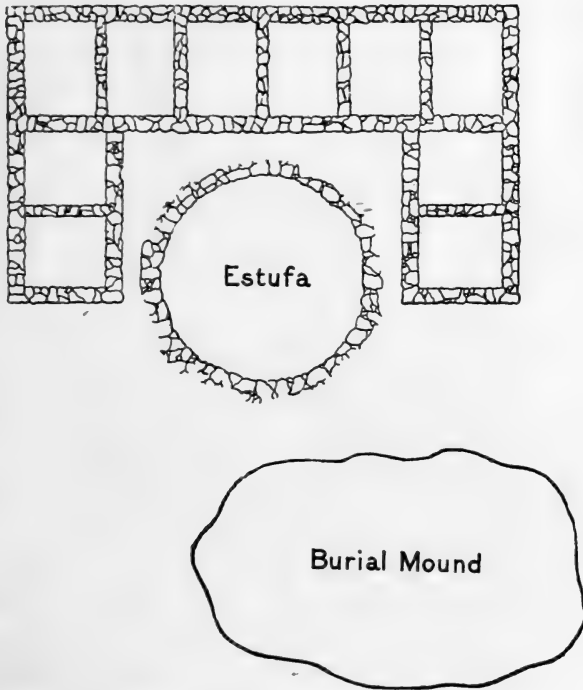
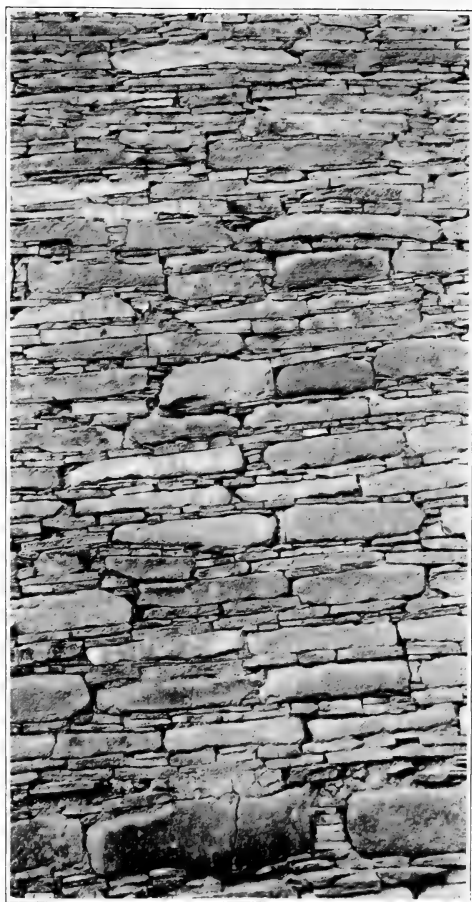


Diagram of Typical Small Ruin.

(Courtesy of Dr. Prudden.)

were raised and another section made. Walls of pre-historic pueblos of the Galisteo Basin have been found built of cubical blocks of adobe laid up without mortar.



Portion of Masonry Wall. Chaco Canyon.
(Courtesy of Dr. Prudden.)

The inner walls were almost always plastered and sometimes whitewashed and ornamented by painting. The impressions of the hands of the plasterers found here

and there indicate that the women did that part of the work at least.

Ceilings. The ceilings and roofs of the rooms were made by placing round logs crosswise with their ends resting on or built into the walls. Above these were placed small poles much closer together and running in the other direction and on them a layer of brush and



Roof. Spruce Tree Ruin.

(Photo by Nusbaum.)

small sticks. A thick coating of wet clay was then applied and well packed down, probably by tramping it with the feet. This formed the ceiling and the roof or the ceiling and the floor of the story above, as the case might be.

Doors. The walls of the lower stories were usually without openings except small ones to admit light and air and through which one might look out. The larger

openings in the upper portions of the walls were either rectangular or T-shaped and were raised a foot or two above the floor level, serving for both doors and windows. They were evidently reached by ladders and in some cases had balconies below them on which a landing from the ladders was made. These balconies were supported by the large ceiling timbers which were allowed to project beyond the walls for this purpose.



Kiva at Spruce Tree Ruin.

(Photo by Nusbaum.)

The lower stories were reached by hatchways and ladders, either from the rooms above or from the roofs if the building was terraced.

Kivas. The kivas, peculiar rooms found in practically all the northern ruins, are for the most part circular and below ground and are ordinarily located in the courtyard. They vary greatly in size from ten or twelve feet to thirty or more feet in diameter. A fire-

pit is usually found near the center and in most cases there is an airshaft of some size opening at the level of the floor and a masonry wall or stone slab in front of the opening to prevent a direct draft. It is not unusual to find masonry walls extending into the circular kivas for some feet, but the purpose of such construction does not appear. They were evidently entered by hatchways through the roofs which were constructed similar to those of the ordinary rooms.

TYPES OF RUINS.

Cliff Palace. The largest and perhaps best known cliff-dwelling is situated in the Mesa Verde region a few miles southwest of Mancos, Colorado. It has been named Cliff Palace and has been described by many writers since it was first mentioned in public print about 1890. The cave which shelters it is 425 feet long, 80 feet wide in the middle, and reaches an extreme height of 80 feet. It occupies the eastern side of Cliff Palace Canyon, which is here about 200 feet deep. The cave opening, therefore, faces the west, with its axis roughly north and south. It resulted from the wearing away by the elements of a stratum of soft sandstone which was protected above by a harder layer that has remained to form the roof. Parts of the rock have broken from this roof and have fallen to the floor below where they have either remained or rolled out to form a sloping talus along its base. The floor of the cave as a result is very uneven, so that the structure stands upon four terraces of varying height with some of the rooms resting upon large blocks of rock.

It appears that it was not planned and built as a whole but that the first buildings were added to from time to time, both on the sides and above. The walls

of this structure, which encloses 117 rooms, not counting those of the upper stories, were built of buff sandstone well dressed and laid with adobe mortar in regular courses. The irregularities are chinked with stone fragments. The corners of the walls are not bonded nor are the joints of the stones regularly broken in the



Cliff

courses. It seems that these devices and that of the arch and its keystone were unknown to the ancient peoples. These walls, which are from one to two feet in thickness, were generally plastered on the inside and sometimes on the outside with a yellow mud laid on and smoothed with the hands, the prints of which are often plainly visible. In a few cases, the walls are ornamented with paintings.

Both rectangular and T-shaped doorways are found and several of them are provided with a recess in which slabs of stone were placed to close them.

Many of the ninety-four rooms which were evidently used for household purposes have fireplaces either in one corner or in the center. The walls are blackened



(Copyrighted by F. K. Vreeland.)

Palace.

with smoke for which no other exit was provided than the doors and windows. In a few of the rooms there is a raised bank along one side which may have furnished sleeping places. Certain rooms, especially those with other rooms above them, show no signs of fire or smoke and since they were entirely dark were without doubt used as storerooms for the food supply. A number of rooms devoted to the grinding of corn have

boxes made of slabs of stone in which the grinding was done on metates as at present in the Southwest. One room has four such boxes side by side with the metates still in place. There are many fireplaces in an open plaza in the middle of the village, where much of the cooking was probably done.

There are twenty-three kivas, situated in a court, most of them having their roofs level with the floors of the ordinary rooms of the first story. To give some of them the required depth the solid rock was excavated for several feet.

A round tower rising from the summit of a block of stone reaches the roof of the cave. It has been supposed that this served as a watch tower. It may have been that the whole structure was intended as a place in which the reserve food supply might be stored and defended, since in the neighborhood are ruins of other community structures in less easily defended situations.

Spruce Tree House. About two miles northwest in an adjoining canyon is another cave with a dwelling nearly as large and much better preserved. It is named Spruce Tree House from a tree found growing in the ruins which when cut in 1891 showed an age of 168 years. In this dwelling are several ceilings in a good state of preservation. This building and Cliff Palace have been restored under the direction of Dr. J. W. Fewkes and it is expected that they will remain in this condition as permanent examples of such structures.

Balcony House. Not far from Cliff Palace and in the same canyon is Balcony House, named so because one of the balconies below the doors of an upper story was found intact by Nordenskiöld, who describes it as follows:

The second story is furnished, along the wall mentioned, with a balcony; the joists between the two stories project a couple of feet,



Aztec Ruin on the Las Animas, New Mexico.

Above: General View before Excavation.

Below: Kiva in the Foreground and Repaired House Walls to the right.

long poles lie across them parallel to the walls, the poles are covered with a layer of cedar bast and, finally, with dried clay. This balcony was used as a means of communication between the rooms in the upper story.

Aztec. The ruin called Aztec near the town of that name stands in an open valley. It is rectangular in shape with tiers of rooms on three sides. There are from five to seven rooms in width on the ground floor, and the outer row probably was originally four or five stories high, the walls of the ruin standing 29 feet above the foundation. The dimensions of the building are 359 by 280 feet, enclosing a court 180 by 200 feet. The fourth side of this court is closed by a row of one-story rooms. There are remains of what was probably a rampart some yards distant which with the row of one-story rooms would have made the place easy to defend. From evidences observed it appears some parts of this structure were abandoned before others so that it is not probable that the entire building was occupied at one time. The excavation of the ruin was undertaken by the American Museum of Natural History in 1916 and has been continued each summer since. The walls are being reinforced with the expectation that the ruin will remain for years as a type of one of the larger community buildings unprotected by overhanging cliffs.

Pueblo Bonito. In Chaco Canyon stands a typical unprotected ruin of a large community house known as Pueblo Bonito. It is close to the north wall of the canyon, roughly semicircular in shape, with five or more rows of rooms on the ground, and was originally four or five stories high. Across the front was a double row of rooms one story high which enclosed a court, in which were twenty or more kivas. The entire length of the structure was 667 feet and its width 315 feet. It contained more than 500 rooms. The masonry of the walls varies in character, that of the first story being com-



Pueblo Bonito Ruin.
(Copyrighted by F. K. Vreeland.)

posed of medium-sized hewn stones and the upper stories of small flat stones faced to form the outer surface. Many sticks of timber are included in the walls to strengthen them. This ruin was excavated by the Hyde Expedition of the American Museum in 1895-1900 and many remarkable specimens were recovered.

Cavate Lodges. Along the Rio Grande and Rio Verde are the simplest possible dwellings, those excavated in the soft rock walls of the canyons. It is along the Rio Verde that the most elaborate of these excavations are found. A round opening was made in the face of the cliff for the door and sufficient rock excavated to make a good-sized living room twelve feet or more in its dimensions and high enough for one to stand. Behind this were storerooms usually of less size and height. There are hundreds of such rooms in the canyon walls.

Natural Caves. A curious series of natural caves near the headwaters of White River in eastern Arizona have some time been inhabited. These caves vary in size and open into each other by low and narrow passageways which are also often steep since there is considerable change in level. In some places the rock may have been excavated and there are a few masonry walls subdividing the larger rooms. The walls are black with smoke and the floors are covered with dirt which rises in dust since it is almost completely without moisture. Several of these natural rooms have small openings in the face of the cliff which admit air and light.

MEANS OF SUSTENANCE.

That the ancient people were agriculturists we know from the corn and beans found in the ruins. In the Museum collections are specimens of corn in the ear, a

basket of shelled corn, and a bag of corn meal. Beans are also found and squash and gourds are known to have been raised.

We know little of their methods of tilling the land. Their tools were simple wooden spatulas or small spades of horn with wooden handles, with which the ground was dug before and after the seed was planted. In much of the territory occupied near the sources of the streams, the valley lands were kept moist by the underflow and did not require irrigation. At the elevation at which these streams leave the mountains there is considerable rain in late summer, enough to mature corn even on the upland mesas. Near many of these mesa pueblos reservoirs are found which received the water from the mountain gulches and retained it for household purposes. In some cases the water thus impounded was used to irrigate the land. Near Solomonville on the upper portion of the Gila River the gardens were arranged in terraces on the sides and at the bases of mesas, and were watered from reservoirs which retained the rain falling above.

Irrigation. The people who occupied the valley of the Rio Verde in central Arizona made fairly extensive use of irrigation ditches in the watering of their crops. But it is along the middle and lower courses of the Salt and Gila Rivers that evidences are found of irrigation practised on a large scale. The Hemenway Archaeological Expedition, in 1887-1888, explored Los Muertos, a veritable city with thirty-six large communal structures, nine miles southeast of Tempe, Arizona. This city, nine miles from the Salt River, was supplied with water by a large canal 7 ft. deep, 4 ft. wide at the bottom, and 30 ft. wide at the top. The walls and the bottom of the canal were very hard, as if they had been plastered with adobe clay after the

soil had been thoroughly packed by tramping. It was suggested by the investigators that fires had been built in the canals and the clay baked by this means. Many side canals were provided for the distribution of the water over the fields. The posts of the gates for regulating the flow were found at the heads of these laterals. Mr. Hodge, who reported these excavations, estimates that similar canals provided for the irrigation of at least 200,000 acres, about half of the land in the valley available for agriculture.

Hunting. The large number of bones of game animals found in the houses and refuse heaps indicates that hunting was not neglected. The weapons probably employed were the bow and arrows, spears, and possibly clubs. The numerous pieces of large rope clearly show they had the means at hand for snares as well.

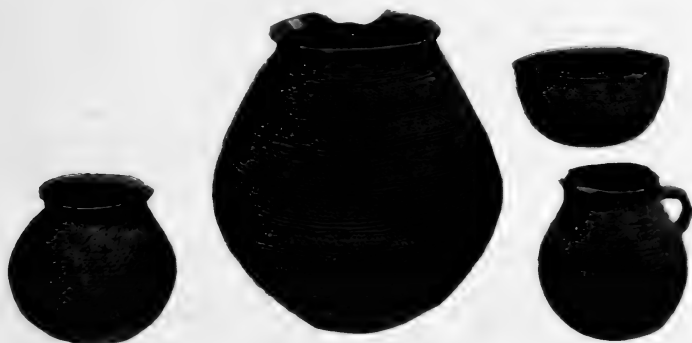
MANUFACTURED OBJECTS.

Pottery. Besides the variety of objects of clay needed in the household at any definite time and place there must be considered the evolution in time of the art and the geographical distribution of various styles.

Plain black cooking vessels seem to be rather uniform over the entire area and to have been made and used at all periods. The vessel was no doubt built up by applying successive rounds of clay strips which were afterward pressed down and smoothed off until all traces of the separate pieces were obliterated. The black color probably resulted from smoke either when the vessel was being baked or while it was being used for cooking.

By leaving the filaments of clay unobliterated on the outside in a continuous spiral a pleasing texture was secured. By applying the thumb in pressing down

the fillet with some attention to regularity and rhythm patterns were produced, sometimes highly decorative. This style of pottery, known as corrugated, is found over the entire Southwestern area. In the matter of time it has been shown that corrugated pottery began with the inhabitants of pit or slab houses who used wide filaments about the upper portion of the vessels. It did not reach its finest stage until a fairly late period and continued to be made until about 1680. These



Prehistoric Coiled Ware.

vessels were used generally, perhaps solely, for cooking purposes. On the upper Gila a distinct type of corrugated pottery, which seems to be of local origin rather than to belong to any definite period, has very narrow filaments of clay and is made with great skill. The interior of the vessels is highly polished.

For purposes other than cooking, another type of pottery known as black on white was used over the entire area from the earliest times until shortly after the Spaniards arrived. A white, or white modified to a gray or pink slip is over the entire surface of the vessel,

either inside or outside according to the exposure of the vessel to view. On this white surface designs in black were painted. The black on white pottery made by the builders of the slab houses and of the small houses was decidedly inferior to that which is found in connection



Tularosa Pottery.

with the large community houses. Those who are familiar with the pottery of this sort from the various parts of the Southwest are able to tell at a glance from what region a vessel comes. From Mesa Verde are flat bottom mugs with handles. Vessels from this

region frequently have black dots on the edge of the rim. From Pueblo Bonito come tall, cylindrical vessels some of which have realistic designs. From the very headwaters of the Gila River have been secured collec-



Pueblo Bonito Pottery.



Prehistoric Pottery. Lower Gila River.

(Courtesy of Peabody Museum.)

tions showing a great variety of forms and styles of decoration, some of which are definitely characteristic of the region. South, along the Mimbres, has been

excavated a large number of both beautiful and curious vessels, many of them having for designs finely executed animal and human figures.

Pottery with a red surface on which designs are painted in black occurs generally in the Southwest, but in the Little Colorado drainage is a ware with a red slip on which the heavier designs are painted in black, with narrower lines in white, which often border the black figures. This Little Colorado region is especially noted for a buff ware on which designs are painted in black which are also often bordered with white.

Rather late in the pre-Spanish period, over a large area centering in the Santa Fe region, a glaze paint was applied to a red or gray surface. At about the beginning of the Spanish occupation the glaze was combined with paint on the same vessels. Soon after, the art of using the glaze began to deteriorate and the modern painted ware began to make its appearance.

Baskets. Fragments of baskets have been found in many of the ruins and it would appear that they were made over the entire area. One of the common types of basketry consists of a diagonal plaiting of strips of yucca leaves attached to a heavy wooden withe which forms the border. The better baskets are sewed on a coiled foundation. This foundation consists of two small peeled rods, placed side by side. Above them is placed a small bundle of fibers, a few splints, or sometimes only two splints or welts. The sewing stitches pass through this bundle or between these splints so as to enclose a part of them and tie the successive coils together. The stitches do not ordinarily interlock. The specimens which have been preserved indicate a fair degree of skill and technical ability. The surviving material is too scanty to furnish a basis for a knowledge of the character or the variety of their designs.

Sandals. The sandals, of which there is a long series in the Museum collection, show great variety in the methods employed in making them and in their ornamentation. The simpler ones are diagonally plaited with broad strips of yucca leaves. Others are twined with two strands and usually have the lower side thickened and cushioned by imbrication or the attachment



Types of Prehistoric Sandals.

of additional material in the form of numerous loops or rows of twine. The warp is usually of coarse stiff fibers, probably derived from yucca leaves, but the woof appears to be of cotton. The designs in red and black are usually arranged in horizontal stripes and bands.

Those associated with the people dwelling in community houses are shaped in front to conform to the general contour of the foot.

Cloth was woven of fibers secured from yucca leaves and from cotton. The cotton was most probably raised in the locality where it was used. No complete looms used in cloth-making have as yet been recovered, but minor implements have been found. These include



Yucca Fiber Bag. Grand Guleh.

forks and batten sticks, both being implements used in pressing down the warp. In the floor of certain kivas places have been found where it is supposed looms were attached. It is altogether probable the loom was of the

general type still used by the Pueblo Indians. This form is common along the Pacific drainage of America south to Chile.

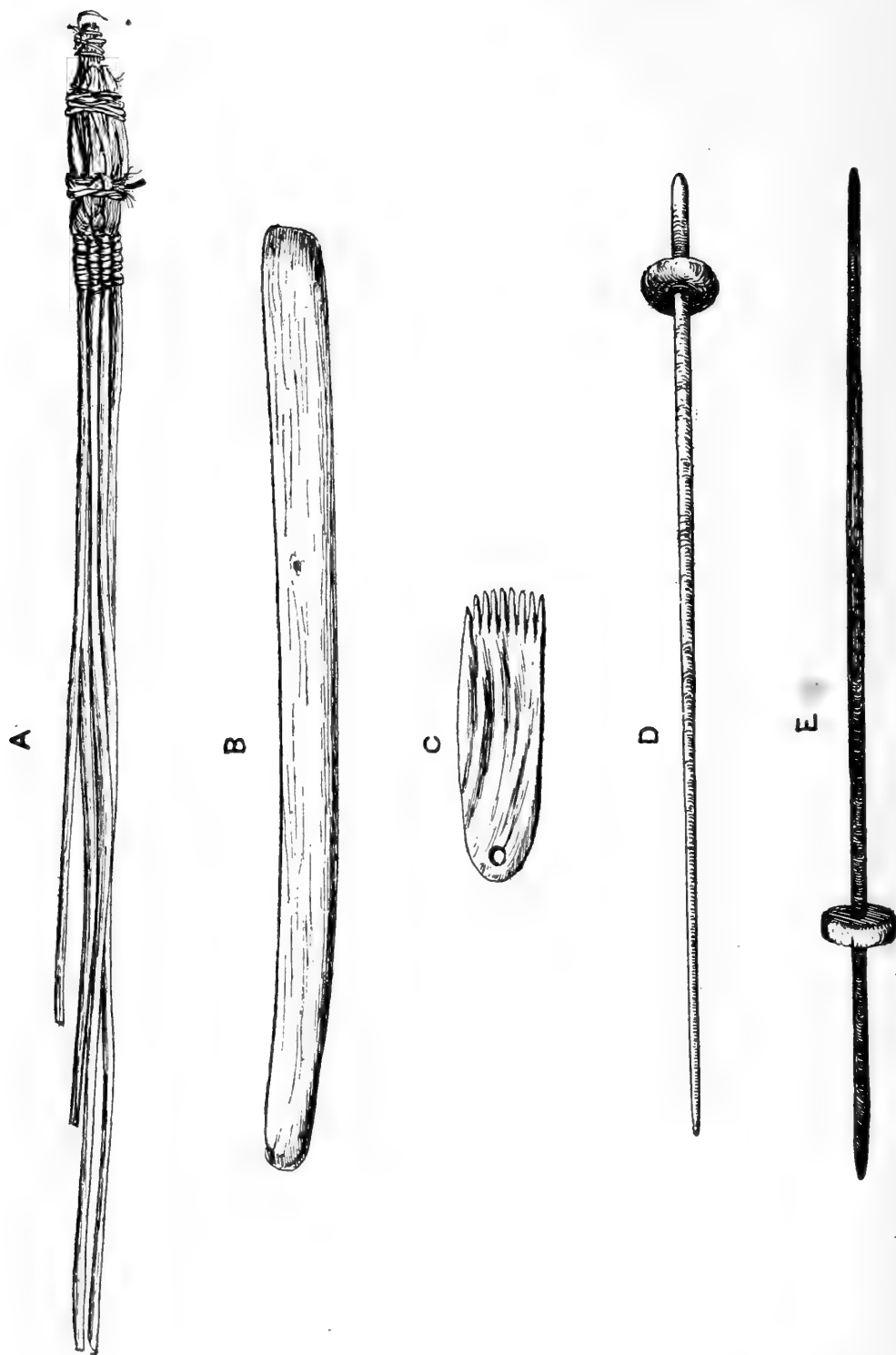
A most interesting piece of weaving is a small robe or kilt found wrapped around a body. The weaving is diagonal, producing raised patterns which are further accentuated by the use of black, red, and yellow dye. This is probably the finest piece of textile work known from the Southwest (illustrated on page 51).

While the specimens recovered from the northwestern portion of the area indicate a great variety and perfection in textile art, there are many examples of cotton and yucca fiber textiles from all parts of the area.

Stonework. The grinding stones employed were metates of the same sort now used in the Southwest and found in the southern portion of California, in Mexico and Central America, and generally in South America. The bottom stone, the metate, is a slab roughened by pecking and often ground down in the middle so that it has a raised border on either side. For use, it has the front end raised, making an angle of about 30 degrees with the floor. The upper stone, called a *mano*, is usually a rectangular prism which is grasped at both ends with the hands of a kneeling woman and rubbed up and down over the bottom stone.

The axes and pestles, made by pecking and grinding selected stones, are gracefully shaped and excellently made. The usual method of attaching a handle to the ax was to wrap stout withes around it in the one or more grooves provided.

The flaked objects of jasper and flint show excellent workmanship and many of them are very pleasing in outline. There are many arrow-heads and drill points and a few large pieces which were evidently used on



Prehistoric Implements Used in Weaving. *a*, Probably a Cotton Beater; *b*, Batten Stick; *c*, Comb Used in Pressing down Woof; *d-e*, Spindles.

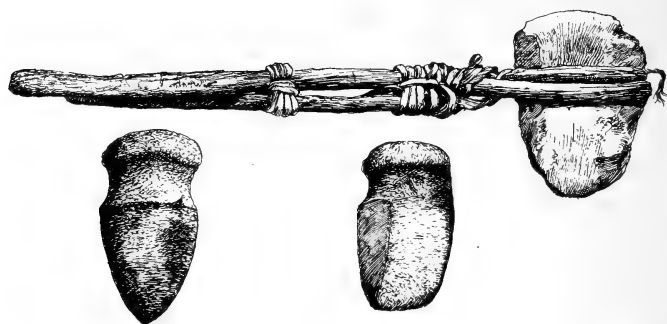
spears. Some of the arrows are of reeds with fore-shafts while others have simple shafts. The drills are also simple and arrow-like. The fire-making apparatus is represented by several large fragments of the hearth or bottom piece and drills some of which are



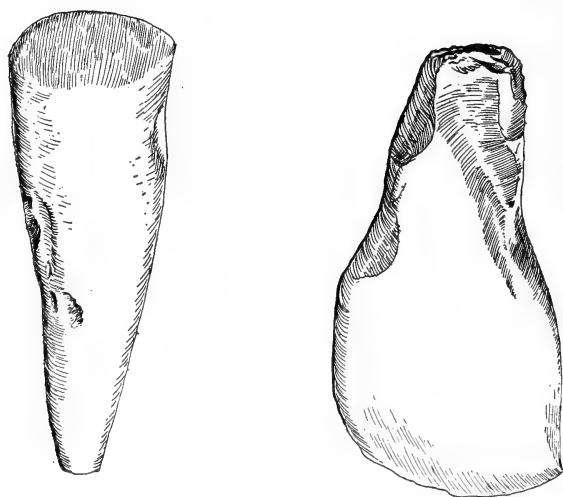
Objects of Wood and Bone. *a*, Arrow; *b*, Sinew-wrapped End of Bow; *c*, Flint-pointed Drill; *d-e*, Firedrill; *f*, Wooden Awl; *g*, Bone Awl.

compound like a foreshafted arrow. A great variety of objects made of stone, shell, and bone has been secured. Some of the most interesting of these are exceedingly small stone disks with minute perforations drilled for stringing. Very beautiful inlaid work has been recovered, pieces of turquoise being set in jet or bone to form mosaics.

The wonderful deposits of turquoise obtained at Pueblo Bonito by the Hyde expedition illustrate both the ability and the aesthetic taste of these early in-



Stone Axes and Hammers.



Polished Stone Chisels.

habitants of the Southwest. There are thousands of disk-shaped, perforated turquoise beads, rectangular pieces which seem to have been fastened to the clothing, splendidly carved birds and insects, and remarkable mosaics. As examples of the latter may be mentioned a cylinder the core of which had disintegrated greatly but with the mosaic covering still in position, a bone scraper with an inlaid band, and a frog of jet with an inlaid turquoise necklace and eyes.



Prehistoric Rattle and Flageolet.

At Pueblo Bonito were also found several flageolets, some of them decorated with painted designs, and one or two with carved figures of birds. From Grand Gulch there is a rattle of small hoofs of deer or antelope and also some dice, together with a cup from which they may have been thrown.

There is no reason to suppose that the prehistoric peoples of the Southwest knew how to secure and make use of the copper which is abundant in that region. A few pieces of copper in the form of bells and ornaments

were found at Pueblo Bonito but it is more than likely they were brought from Mexico in trade. Some remarkable pieces of pottery with a textile backing and examples of cloisonné work are believed to have reached Pueblo Bonito in the same manner.

DISPOSAL OF DEAD.

The dead were variously disposed of. In the northwest along Grand Gulch and Cottonwood Creek they were buried in caves and under the floors of houses.



Mummy Wrapped in a Cotton Robe. Grand Gulch, Utah.

In the Pajarito Plateau, the bodies of children were sometimes placed in a house wall and enclosed with masonry but adults were buried in cemeteries. Burial under the floors was practised in Galisteo Basin and on the upper Gila, but lower on that stream cremation and urn burial of the ashes was the custom followed.

RELIGION.

We know little of the religious practices in prehistoric times. There are many objects which may with reason be supposed to have been ceremonial in their use. In the Rio Grande region, are found large stone images that have long been supposed to be idols. Mr. N. C. Nelson, while excavating Pueblo Largo ruin in Galisteo Valley, found a stone image before which on a raised adobe platform were several pottery vessels and queer-shaped stones. These objects and their arrangement certainly present an early type of the altar still in use among the Pueblo Indians.

SUMMARY.

Perhaps nowhere in North America is it possible to reconstruct so detailed and vivid a picture of the life of a prehistoric people as in the Southwest. The generally arid climate and the protection of large caves have preserved textiles and other objects which usually perish.

The large community houses brought together considerable numbers of people who lived together in close association. Such communities subdivided no doubt into small groups on the basis of relationship, wealth, or ceremonial and religious duties. We must assume rulers or officers both political and religious. They were of necessity an industrious people since considerable tracts of land were planted each year to corn, beans, squash, and probably cotton. In addition, considerable quantities of wild grass seeds, nuts, and similar food were gathered. There are evidences that flocks of turkeys proportional to the needs of each settlement were kept and that they were given proper care and housing. We do not know that their flesh was used

for food but their feathers were in great demand for clothing. A certain amount of hunting was also done, for the bones found indicate that deer and lesser animals were used for food.

The food of course had to be prepared and served. Each woman probably made her own dishes of clay. Such skill and art as are displayed in the pottery of the Southwest are not easily acquired. The girls must have been educated by frequent instruction and practice in the art. Clothing seems to have been made by the time consuming methods of hand manufacture: the preparation of the fibers, either of cotton or yucca, spinning by hand, and the slow building up of a web of cloth by adding thread to thread in a primitive loom. The houses needed a certain amount of care, especially those built in the open places. The roofs had to be kept tight and the walls plastered and protected from rain. In some instances there seems to have been constant additions of rooms to these community structures. In other cases the entire population moved away and built again.

Those who believe the occupation in the Southwest to have been of short duration and that the population at any one time was not great might estimate for us the number of working hours required to build all the known structures and make all the pottery of which we have remains.

With all this busy industrial life we know there was time for the making of many ornaments; and there are reasons to believe that games and sports were engaged in and that ceremonies of some sort were performed.

In short, life was not particularly different from that observed in the Southwest later by the Spaniards and which may still be witnessed at Zuñi or on the Hopi mesas. It may be added that in contrast with the North

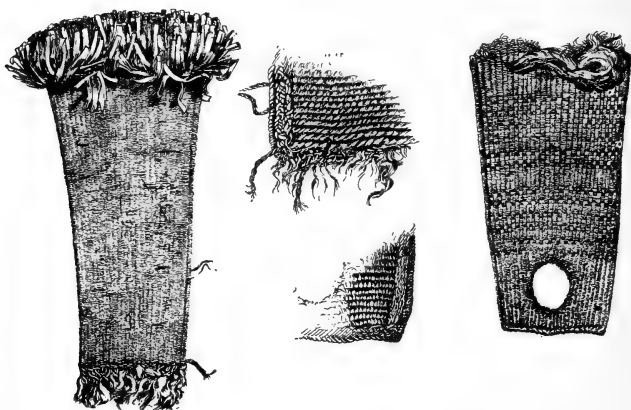
American Indians in general, the daily life in these regions was not strikingly different from that in agricultural village communities in Europe at the same period. The more essential differences were the lack of domestic animals which assisted the European peasant in his labors and the limited commerce in America.

According to our present information we must consider the inhabitants of these cliff ruins and the ruined community houses which are scattered over the Southwest, the ancestors of the present-day pueblo people. Certainly the culture they developed has survived, on the Rio Grande, at Zuñi, and on the Hopi mesas with no great amount of change. Whether at the time these ruins were populated there were peoples living in this region with less permanent houses, leading a nomadic life, we do not know.

THE BASKET MAKERS.

In southern Utah and northern Arizona there have been found remains of a people for the present known as Basket Makers. They were accustomed to bury their dead in pits or cists excavated in the floors of caves. The protection thus afforded from moisture has preserved both the bodies and the clothing and objects buried with them. The skulls of these Basket Makers are easily distinguished from those of the Cliff Dwellers who often occupied the same caves. The skulls are not deformed as are those of the Cliff Dwellers and aside from that they are unusually long and vaulted with a characteristic narrowing in front. We know nothing of the houses these people occupied except that they were too meager and temporary to survive. They were an agricultural people, raising corn and pumpkins. They appear to have hunted more and more successfully than did the inhabitants of the stone houses, for their cloth-

ing was largely made of strips of fur attached to a net of fabric. While it is to be presumed that they had pottery of some sort for the cooking of corn, none has been found which is so definitely connected with their burials as to leave no doubt in the matter. They made, however, very excellent basketry. This was coiled or sewed, very similar to that found in the community houses. The coiled foundation consists of two peeled twigs placed



Sandals of the Basket Makers.

side by side and a small bundle of fibers placed between and above them. The stitches of the sewing material do not interlock. The designs upon these baskets, in black or brown, are of the geometrical sort usually found on basketry. The sandals are often very well made with a pile-like padding on the bottom, and are distinguished from those of the stone-house people by their square toes.

The Basket Makers possessed a dart hurling device known as an *atlatl*. The contrivance produces the result of considerably increasing the leverage of the arm.

Similar objects are found southward into Mexico but are not found farther north than Utah. The present presumption is that this weapon was used to the exclusion of the bow, which, from its wide distribution, must have been known in America from its earliest settlement.

The Basket Makers also made very useful and well-decorated sacks of yucca fiber strings. Large quantities of human hair both as finished twine and in preparation have been found.

Whether these Basket Makers changed their ways of life and became pueblo dwellers we do not know. It is not generally to be assumed that a people well settled in a locality with a highly developed-culture change their ways of life without pronounced foreign influence such as results from a movement of population.

CHAPTER II.

THE PUEBLO DWELLERS.

EXPLORATION.

IN the first half of the sixteenth century the successors of Cortés were extending the rule of Spain beyond the Valley of Mexico. Antonio de Mendoza was the viceroy of Mexico, and Nuño de Guzman had explored the Gulf of California and organized its eastern shore into the province of New Galicia. Narvaez with a considerable company had sailed from Cuba with the purpose of taking possession of the region about the mouth of the Rio Grande but was forced by a storm to land on the west coast of Florida. The party landed much too far east, painfully made their way westward, finally building small vessels in which they attempted to sail to their destination.

Cabeza de Vaca. Eight years later, in 1536, Cabeza de Vaca, the treasurer of this ill-fated expedition, accompanied by two Spaniards and a negro named Estevan, arrived in New Galicia on foot having crossed Texas and northern Mexico. They had heard of great "cows" on which the natives of the vast plains lived and also of settled towns. Now, the ancient Mexicans had a myth which told of their origin in the north where there were seven caves or canyons from which they believed they had migrated. There were rumors in Mexico of seven cities of wealth in the north. Furthermore, it was an adventurous age and men were looking for new lands where there was gold ready mined, and men to kill or to convert, as occasion demanded.

Marcos de Niza. To investigate this report of seven cities to the north, a Franciscan friar, Marcos de Niza, was sent with a small escort and the negro, Estevan, as a

guide. As they went toward the north they continually heard of the great and rich cities; but great and rich and cities meant one thing to Europeans acquainted with Mexico and Peru and another thing to the natives.

When they reached Vacapa, in central Sonora, Estevan was told to go in advance and discover the best route. He was ordered to send back word of what he might find and not to proceed more than fifty or sixty leagues. Estevan sent back messengers but hurried on himself and after some days of delay the friar followed. A month later when he had reached the mountainous country one of the men who had been with the negro met him and told him that they had reached the sought seven cities but that the natives had killed Estevan. Friar Marcos went on until he could see in the distance one of the villages of the Zuñi Indians and was then forced to return by his unwilling followers.

Coronado. The report which he brought back was sufficiently glowing to bring about an expedition the next year by Francisco Vazquez Coronado, who had been the governor of New Galicia. Hernando de Alvarado was his chief lieutenant. The advance guard arrived at Cibola, supposed with good reasons to be the former villages of the Zuñi, on July 7, 1540. After some fighting, during which Coronado was wounded, the Indians took refuge on Thunder Mountain, leaving their villages to the Spaniards. Hearing a report of seven other cities to the northwest, Don Pedro de Tovar was sent to investigate. He visited the Hopi villages known to the Spaniards as Tusayan and returned, bringing an account of the villages and a report of a great river with an uncrossable canyon to the west.

Alvarado, the second in command, was sent with a few men to explore toward the east. He passed the village of Acoma, perched on its high mesa, and arrived

at the Rio Grande, probably near Bernalillo, where there were villages similar to those of Cibola. Coronado joined him here with the main army and passed the winter in one of the villages. The natives, at first friendly, offended by the constant demands for food and clothing and by the ill-treatment of their women, drove off the horses and mules of the Spaniards. The village involved was attacked and some of the men surrendered. The officer in charge prepared two hundred stakes for these prisoners but when the Indians saw they were to be roasted alive they seized the stakes and renewed the fight with the result that they all died more agreeable deaths. During the winter, the Rio Grande was explored to the north and south and the various pueblos described. A captive from the Plains Indians, called by the Spaniards the Turk, told of a still more wonderful country, Quivira. In the spring a division of the army started to visit this country with Turk as a guide. They soon came to open country where there were vast herds of buffalo and Indians following them with skin tents and dogs that transported their property. After weeks of travel Turk was discredited and another Indian led them to some unimportant villages of agricultural Indians. The distances and directions would have brought them to the neighborhood of eastern Kansas.

After a stay of twenty-five days they returned to the Rio Grande where they spent the winter. Coronado fell from his horse and was seriously hurt. A council decided upon an immediate return to Mexico and all went gladly except two monks who chose to remain behind and preach, but they soon perished at the hands of the natives. The expectations of those who had organized the expedition had been great. They had been looking for another Mexico or Peru with great

cities and great wealth. Nothing seemed to have resulted from the expedition worth the labor and expense involved.

THE CONQUEST.

It was forty years later, in 1580, that Francisco Sanchez Chamuscado accompanied three Franciscan missionaries up the Rio Grande to New Mexico and left them to begin the Christianizing of the Indians, but during the following winter all three were killed. When their fate was known in Mexico, Antonio de Espejo, with fourteen Spaniards visited the principal pueblos. The interest created by his report resulted in allowing Juan de Oñate to colonize the country. He came in 1598 with 130 white men and many Indians, visited the important pueblos, received their submission, and established a capital and built the church San Gabriel at Chamita, where the Chama flows into the Rio Grande. Oñate continued as governor until 1608. By 1630 most of the pueblos were provided with churches and missionaries.

THE REBELLION.

The natives, vassals of the king of Spain, were treated harshly by the civil and military authorities; the priests, eager to establish their religion, forced it upon the Indians, at the same time repressing the native beliefs and practices. These two causes produced a feeling of resentment which finally resulted in rebellion in 1680. The heads of the pueblos communicated with each other and appointed a day on which all the white people should be killed. One of the inhabitants of San Juan was kindly disposed toward the rulers and priests and gave them warning. But this

only resulted in an immediate attack in which the priests in all the near-by villages were killed. Word was sent to the other villages of the miscarriage of the plot and the priests and Spaniards living in them were killed. Governor Otermin, after several days of unsuccessful fighting about Santa Fé, which had become the capital, fled with many of the Spanish inhabitants to El Paso. He returned the next year, succeeded in capturing Isleta, but failed to reestablish his rule.

In 1683 Petriz de Cruzat became governor. He was later removed and still later reappointed. He made a successful march as far as Sia where in an all-day battle he beat the combined Indians, killing 600 and capturing 70 of them. Before the report of this victory reached the king, Don Diego de Vargas was appointed as his successor. He conducted a vigorous war from 1692 until 1696, during which he tried in vain to take the Black Mesa near Española upon which the inhabitants of San Ildefonso had established themselves, but succeeded in capturing Old Cochiti in a night attack. Most of the warriors had escaped, and by a counter attack they released half of the 340 women and children held as prisoners. De Vargas burned the village and took the stored corn to Santa Fé. In the end the Indians were subjugated and peace was established, but the Indians were not again treated so harshly and the priests were more tolerant toward the native religious practices and less insistent upon anything but a nominal acceptance of Christianity.

DISTRIBUTION IN 1540.

If we assume that all the inhabited pueblos, with one exception mentioned below, were seen by members of Coronado's party, it appears that there had already been a considerable shrinkage in the pueblo area.

They did not hear of villages anywhere on the San Juan or Gila rivers or their tributaries. With the Coronado expedition was a private soldier interested in ethnology, Pedro de Castañeda, who left not only a most readable narrative of the journey itself, but interesting observations concerning the number and location of villages and the manner of life of the natives. He listed the villages and described them as located in the following provinces:

Cibola. This province when first discovered was said to have seven villages. Of these the location of five seems fairly certain. They are Hawikuh and Ketteippawa near Ojo Caliente, the present Zuñi, then known as Halona, and Matsaki and Kiakima near Thunder Mountain. At the time of the rebellion in 1680 Hawikuh, Zuñi, Matsaki, and Kiakima were still inhabited. At the close of the rebellion the people gathered at Zuñi where they remained until the recent movement to the outlying districts.

Tusayan. The province of Tusayan also had seven villages situated near the sites of the present Hopi pueblos. One of the most important of these, Awatobi, was attacked by the other Hopi people in 1700 because it received a missionary after the rebellion, and was abandoned. At about the same time Hano, near Walpi, on the first mesa, was settled by Indians who came from pueblos on the Rio Grande. Castañeda estimated the population of the two provinces of Cibola and Tusayan at between three and four thousand.

Acoma. The high mesa with Acoma on its top, reached by difficult trails, is unmistakably described. The cisterns on the mesa which hold the rain and melted snow are mentioned. The population is given as two hundred men.

Tiguex. The province of Tiguex, on the Rio Grande near Bernalillo, had twelve villages scattered along the valley on either side of the river. None of these villages is now inhabited. Below along the river was the province of Tumahaco with eight villages, probably in the neighborhood of Isleta which may occupy the site of one of them. Still farther down the Rio Grande were three villages which may have been situated as far south as San Marcial where there are ruins of the former Piro villages.

Salinas. East of the river were at least three villages not mentioned by any of Coronado's followers but included later in the district of Salinas, named from the salt lakes in the neighborhood. These villages of Abo, Quarai, and Tabira, generally known as Gran Quivira, were hard pressed by the Apache and appear to have been deserted about 1675. When Governor Otermin passed down the Rio Grande in 1680 after the uprising, the inhabitants of the villages on the lower Rio Grande, Socorro, Sevilleta, and Alamillo, collectively known as the Piro, then few in number from the raids of the Apache, joined him and were established near El Paso where a few of their descendants are still living at Isleta del Sur.

Quirix. Just north of Tiguex was the province of Quirix with seven villages, probably those now represented by the Keresan villages of Santo Domingo, San Felipe, Santa Ana, Sia, and Cochiti, the location of many of which was changed during the rebellion.

Tanos. To the east of these, was Ximena, with three villages in Galisteo Valley, deserted at the time of the rebellion. San Cristobal and Tanos, the largest of these, were excavated for the American Museum during the summer of 1912 by Mr. N. C. Nelson. In the "snowy mountains" there were seven villages not

referred to by name now completely in ruins and hard to identify.

Cicuye. On the Pecos River was the one large pueblo known to the men of Coronado by the name Cicuye. It was estimated at that time to contain 500 fighting men. The population of Pecos slowly decreased, room after room of the great pueblo being abandoned, until in 1838 the handful of survivors moved to Jemez.

Jemez. This was originally a province, given the name Hemes by Castañeda, which in his time consisted of seven villages with three additional ones at Aguas Calientes, Jemez Hot Springs. The population was concentrated during the seventeenth century until only two of these villages were occupied. After the rebellion, during which Jemez suffered particularly, only one village was maintained.

Tewa. Northward was Yuqueyunque, at the mouth of the Chama, and six villages in the mountains which probably included the pueblos north of Santa Fé. Finally, several leagues to the north were the two pueblos of Picuris and Taos, the latter called Braba, both located nearly as they stand to-day.

Besides these inhabited villages, others are mentioned as having been recently destroyed by a Plains tribe, the Teya, possibly the Comanche.

Castañeda summarizes the Rio Grande region with a statement that these sixty-six villages were scattered over a distance of 130 leagues having the province of Tiguex near the middle with a combined population of 20,000 men.

It appears that the area which ruins show once to have been inhabited by sedentary peoples had been reduced nearly half at the time the Spanish first entered the country, and the number of inhabited villages to-

day is much smaller than when Coronado visited them in 1540. The pueblo of Pecos, those of the Galisteo Valley, and of the Salinas District, and all those on the Rio Grande south of Isleta are in ruins.

Nor are more than one or two of the pueblos situated exactly as they were in 1540. Immediately after the



Pueblo of Walpi.

(Photo by Howard McCormick.)

rebellion, the pueblos in less easily defended situations were deserted and others built in more secure locations. The inhabitants of San Ildefonso took refuge on the top of Black Mesa; those of Cochiti left their village on the slope of the mesa and built another on the top, where they were joined by refugees from other pueblos. Nearly all the Hopi villages were also moved at that time to mesa tops. The inhabitants of Zuñi went to the

top of Thunder Mountain. Although some of the pueblos were captured by the Spanish and certain abandoned pueblos were burned during the re-conquest, most of the changes in location seem to have been made voluntarily in anticipation of Spanish vengeance.



Pueblo of Zuñi.

(Copyrighted by Fred Harvey.)

PRESENT DISTRIBUTION.

Rio Grande. The villages now occupied are usually separated into three groups, the Rio Grande, the Hopi pueblos, and Zuñi standing by itself. The Rio Grande pueblos are again divided into the Tanoan and Keresan, because the languages of the two are totally different. There are also minor differences in culture. The Tanoan group consists of Taos, Picuris, San Juan, Santa Clara, San Ildefonso, Tesuque, Pojoaque, Nambe, Jemez, Sandia, and Isleta. Those which

use the Keresan language are San Felipe, Cochiti, Santo Domingo, Santa Ana, Sia, Laguna, and Acoma.

Hopi. The Hopi villages are geographically separated into the first or eastern mesa on which stand Walpi, Sichumovi, and Hano; the second or middle mesa with Shipaulovi, Mishongnovi, Shumopovi; and on the third mesa, Oraibi, the largest of all.

Quite recently the conservative party of Oraibi, who wish to live as they formerly did, have withdrawn and built a new village known as Hotavila a few miles away on the same mesa. Forty miles westward is the summer village of Moenkapi situated where conditions are favorable to agriculture. The language of the Hopi proper is Shoshonean connected with Ute and Comanche. One of the villages, however, Hano, still has its Tewan dialect, maintained since the migration from the Rio Grande early in the eighteenth century.

Zuñi. The pueblo of Zuñi, which by itself is the descendant of the seven cities of Cibola, has three outlying farming villages, Pescado, Nutria, and Ojo Caliente which are fast becoming permanent settlements. The Zuñi language is believed to be entirely independent of all others.

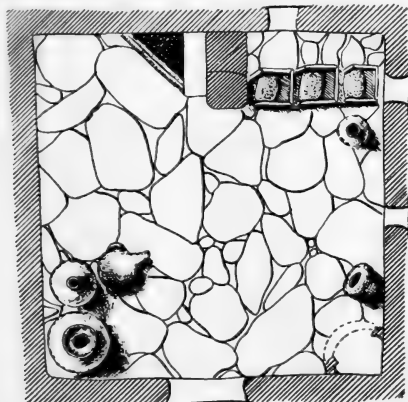
HABITATIONS.

The houses of the sedentary peoples of the Southwest retain the two chief characteristics of those of the ancient peoples which are really the most striking features of Southwestern culture: they are communal, honeycomb-like, and almost without exception terraced.

Arrangement of Buildings. The modern villages present three types of arrangement. A large square or rectangular building, terraced back from all four

sides, results in a pyramid which is easily defended. The common prehistoric arrangement around an enclosed court from which the upper stories recede is still found. The third type has the houses in long parallel rows terraced back from the streets.

In the Rio Grande region Taos has two large houses of the pyramidal type on either side of a beautiful stream. One of these is five and the other four stories



Floor Plan of Hopi Living Room.
(After Cosmos Mindeleff.)

high. San Ildefonso, Jemez, Santa Clara, and San Felipe have one or more enclosed courts. Acoma is an excellent example of the third type having three rows of three-story houses, terraced back from the streets. Santo Domingo and San Juan have a similar arrangement.

Zuñi combines both the first and second types of arrangement. It is terraced back from the outside but also has several courts, in the largest of which the old church is situated. The pueblo is intersected by a number of passageways or streets leading to the interior

A recent study of the village of Zuñi brings out the interesting fact that the same general arrangement and the lines of the village have been maintained practically unchanged while many of the individual houses and house walls have been altered and replaced.

It is on the Hopi mesas that structures more like those of prehistoric and early Spanish times are found. One of the smaller pueblos, Shipaulovi, is built about a square court from which it is terraced back and upon which the lower terrace has its openings. Several of the other pueblos show signs of having been first built around a court and then added to as the inhabitants grew in numbers until there are now several courts. Mishongnovi has three completed ones and the beginning of another. Shumopovi has one well-enclosed court and another partly enclosed, but the houses are terraced so as to face the east. Walpi, which has grown until it has nearly covered all the available space, has the older portion of the building surrounding a court from which it was terraced back. Oraibi is arranged in long irregular rows.

Building Material. The pueblos of the Rio Grande region are largely built of adobe brick, the art of making which was pretty certainly learned from the natives of Mexico who came into the Southwest with Oñate and later. Clay, first mixed with straw and water, is molded in rectangular forms and allowed to dry in the sun. These bricks are laid in regular courses with similar material for mortar. Such walls are durable only when they are protected from rain by means of extended roofs, or by constant plastering.

Castañeda gives a description of the older method of preparing adobe. He says fires were made of small brush and sedge-grass upon which, when the sticks were falling to ashes, water and clay were thrown.

The material was then molded into balls and laid like stones in courses with mortar of similar material. This masonry work he tells us was performed by the women, but that the men did the carpenter work, preparing the timbers and putting them into place. The inner walls were plastered and sometimes painted, but he does not tell us what material was used. At the present time burned gypsum is employed as a white-wash, but this method has probably been adopted from the Mexicans who also make use of it.

Acoma is built of rubble and clay. A village in the same situation as the present one and probably the one described by several of Coronado's party, was partly burned in 1599. The village was not destroyed during the rebellion a century later, and the walls now in use may be the same seen in 1540, repaired and in part rebuilt from time to time.

While Zuñi is built mostly of adobe, the cornices frequently have several courses of flat stones.

The Hopi houses are built of stone poorly dressed and poorly laid as compared with the best prehistoric masonry. Mindeleff, who published a splendid account of Pueblo architecture, observed women building a detached house with the help of one man who lifted the timbers into place. While the men are said to build the walls sometimes, the women are always expected to do the plastering. The ceilings are made in the prehistoric fashion with beams, cross poles, brush, and clay spread over all and tramped down. The floors are sometimes flagged with large flat stones. The walls inside are generally whitened with gypsum and sometimes ornamented by leaving unwhitened bands above and below. The fireplaces situated in one corner of the room are provided with hoods which receive the smoke and communicate with chimneys which are

generally topped with a pot or two from which the bottom has been broken. In another corner of the room is generally found the three-sectioned milling box with three grinding stones. The rooms of the lower terrace are mostly used for storage.

There are a few T-shaped doorways like those found in prehistoric ruins still to be seen in the Hopi houses. During the Spanish period windows in the walls were more generally used. They were covered with thin sheets of selenite which was the substitute for glass in general use in the Southwest. Ordinary windows and hinged doors are now coming into common use.

SHELTERS.

For the shelter of those who are tending the crops and as a camping place for the family when the fields are far from the village, temporary structures are built. The common type is made by setting four posts at the corners of a rectangle so that their forked tops are seven or eight feet above the ground. These posts support a platform of poles and brush which casts a shade and furnishes on its top a storage place away from dogs and stray animals. The Hopi often cut trees or brush and set them in curved or straight lines so as to break the wind and furnish the desired shade. The two forms are sometimes combined so that the space under the platform has a wall of brush on one side. Temporary rectangular houses of stone with flat roofs are also built by the Hopi and Zuñi.

KIVAS.

The modern pueblos with a few exceptions are each provided with one or more kivas. In a general way, they resemble the prehistoric kivas, both in their structure and their location.

The kivas of the Rio Grande region are frequently circular, the roofs of some of them being level with the ground while others are built up to a considerable height so that their forms are readily apparent from the outside. Details as to their structure are not available except that they are entered through hatchways by means of ladders which project to a considerable height.

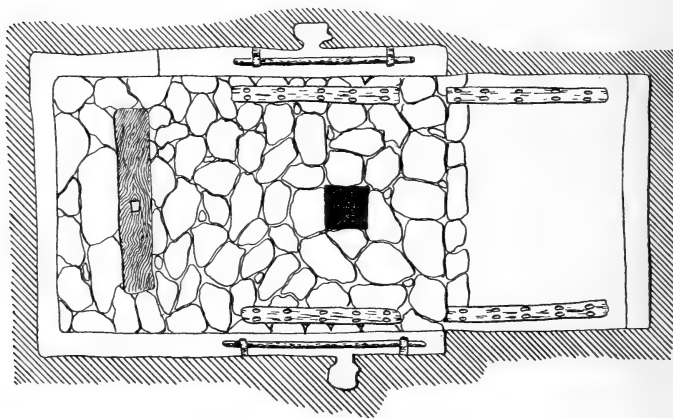


Kiva. San Ildefonso.
(Copyrighted by Fred Harvey.)

With the exception of the fireplace, the ladder, and the posts supporting the two main roof beams, they are said to be entirely without furnishings. The Keresan kivas of which there are always two to a village, known as the summer and winter kivas, are said in some instances to be permanently decorated with the pictures of the animals associated in mythology and ceremonies with the cardinal points. The kivas of San

Juan and Santa Clara are rectangular and above ground and those of Jemez and Acoma are included in the regular house structure differing externally from ordinary rooms only in the projection of ladder tops.

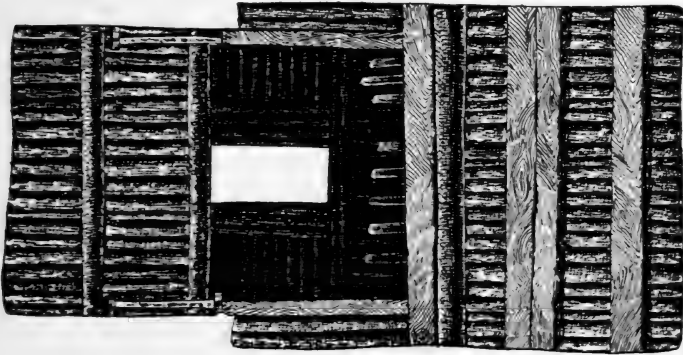
At Hopi they are frequently built in the side of the mesa so that the wall of the kiva on one side is exposed to light and air while the roof is still kept level with the surface of the mesa. They are all rectangular, about twenty-five feet long and half as broad. The



Floor Plan of Hopi Kiva.
(After Cosmos Mindeleff.)

floor, which is generally paved with stone, is in two levels. The higher portion a foot above the other occupies about one third the entire floor space. This is reserved for spectators. In the lower part, there is a fireplace, a mere rectangular pit placed in the center directly under the hatchway; and at one end there is a small cavity covered by a plank in which a hole is cut, furnished with a close fitting plug. This represents the lower world and the place of emergence through

which the people and animals originally came to this world, and through it the deities are now supposed to come during the ceremonies. Along the sides of the room are placed slabs provided with holes to receive the posts of the looms which are usually set up and used in the kivas. A stone-capped bench along one or more of the side walls is sometimes provided for seats. At the farther end of the lower level a similar bench about two feet high is used as a shelf on which images are



Roof of Hopi Kiva.
(After Victor Mindeleff.)

placed and an opening in front holds certain masks when they are not in use.

The walls, which are of stone, are kept nicely plastered by the women. The roof is composed first of large logs placed crosswise resting on top of the two side walls; next, of many smaller poles placed lengthwise which in turn are covered with brush and well packed clay. In the middle a space about five feet by seven is left for the hatchway. Masonry walls resting on the ceiling beams are carried up for a few feet on all four sides. Across the

top of these walls are laid planks leaving an opening four and a half feet long and two feet wide. Through this hatchway a ladder top projects ten or twelve feet.

At Zuñi there are six ceremonial rooms known as *kiwuitsiwe* where the masked men who represent the gods in the ceremonies meet and rehearse. These are located in various parts of the town proper, are not underground, and do not have the prescribed form and structure which characterize the circular kivas of the Rio Grande or the rectangular ones of the Hopi.

Castañeda and other early Spanish writers seem to have been amused by these kivas—*estufas* (stoves) they called them. They are described as being situated in the yards of the buildings with their roofs level with the ground. There were in that day both square and round kivas. Those of Taos are mentioned in particular, one of which was said to have twelve pine posts of large size supporting the roof. The floors were paved with large smooth stones with a boxed-in fireplace in which small brush was burned for heat enabling the occupants to remain in them as in a bath.

The kivas today are used as clubrooms and lounging places as well as workshops, the weaving usually being done in them. They are chiefly, however, more or less sacred rooms set apart for ceremonial purposes. In them those portions of the ceremonies which it is desired to keep secret from the uninitiated public are held. They also serve as places of retreat for those who, for a time, must avoid profane contaminations.

Food.

The method of securing food is always the central fact in a people's existence, around which social life, art, and religion are largely built. There are considerable regions in North America where agriculture was not

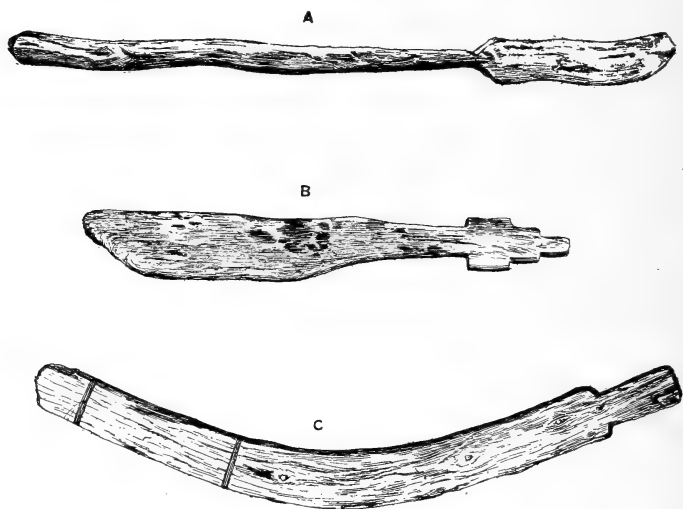
practised. In the great plains the chief dependence was upon the buffalo, while on the North Pacific Coast the people lived largely on fish. The inhabitants of the Plateau area lived upon wild vegetables, small game, and insects. The sedentary peoples of the Southwest placed their first reliance on the crops which their fields produced. These were in earlier times, corn, beans, and squash. Recently wheat and other small grains and vegetables have been added. Hunting was by no means neglected for flesh was needed to produce a balanced diet. The wild vegetables in the neighborhood were gathered and preserved for later use.

Agriculture. The fields of the Rio Grande peoples are situated in the river bottoms and along the smaller streams near their villages. Irrigation is now practised and was being practised at many of the pueblos, at least when the Spanish first entered the area. There were, however, no great difficulties involved and no large canals like the prehistoric ones of the lower Salt River were necessary. The fields of the Acoma are fourteen miles away at Acomita and Pueblito, apparently where they were when Espejo visited them in 1583. He mentions both the cornfields two leagues away, and the river from which he says they watered them.

The Hopi fields are situated near the mesas wherever there is sufficient moisture from some gulch or spring. Corn is planted ten or twelve inches deep with a planting stick which makes a suitable hole. The corn is not raised in rows, but in large clumps of eight or ten stalks, at considerable distances from each other. While the plants are young, they are protected from the wind and the drifting sand by windbreaks of brush or stone. Irrigation is not practised except that vegetables are sometimes watered by hand. Ditches, however, are

provided to carry off the excessive waterfall during heavy showers.

Because of the large population of Zuñi many of their fields are at a great distance; the people move in large numbers to the neighborhood of these fields where the summer villages of Nutria, Pescado, and Ojo Caliente are maintained. Mr. Frank H. Cushing has described the old Zuñi method of agriculture. A man without land chose a piece of ground where a gulch



Hoes and Throwing Stick.

opened into a valley or on to the margin of the plain. Across this he made an earthen dam which retained the water and mud brought down during heavy rains. Since the gulch was ordinarily a dry one, the water did not stand for any length of time but enough of it sank into the ground to supply what moisture was needed for a crop of corn.

Quite contrary to the usual custom among the North American Indians, the men till the fields and do the greater part of the work connected with raising and harvesting the crops. This is probably because in the Southwest agriculture is the chief means of securing food while in other regions it is of less importance than hunting and fishing to which the men principally devote themselves. The only primitive implements used in tilling the soil appear to have been the planting stick and a knife-like wooden paddle which served as a hoe or shovel. Castañeda tells us the ground was not broken before planting the seed. He, of course, greatly exaggerated the productiveness of the soil when he said that one crop was sufficient for seven years. He mentions large quantities of corn in Galisteo Valley stored in underground chambers. The Hopi pueblos still maintain at least a full year's supply of corn to guard against crop failure.

After the corn is gathered it is thoroughly dried either by hanging it in long braids or by spreading it in the sun on the roofs of the buildings. It is stored in the back rooms of the lower stories where the braids are hung up and the loose ears piled in tiers. The pumpkins and squash are cut in long strips which are twisted together and hung about the houses together with many strings of red peppers.

The Hopi and Zuñi have many peach orchards, but fruit was not cultivated when the Spanish first became acquainted with the Southwest. They did make use of piñon nuts which are frequently mentioned. That they used cherries, wild plums, the fruit of the yucca, and of the various cacti and the pods and beans of the mesquite is also probable, although Castañeda says that pine nuts were the only fruits used by them.

Preparation of Food. The method of grinding corn has changed but little since it was first described by Castañeda.

They keep the separate houses where they prepare the food for eating and where they grind the meal, very clean. This is a separate room or closet, where they have a trough with three stones fixed in stiff clay. Three women go in here, each one having a stone, with which one of them breaks the corn, the next grinds it, and the third grinds it again. They take off their shoes, do up their hair, shake their clothes, and cover their heads before they enter the door. A man sits at the door playing on a fife while they grind, moving the stones to the music and singing together. They grind a large quantity at one time, because they make all their bread of meal soaked in warm water, like wafers. (Winship, 522.)

The meal boxes are often in one corner of the living rooms of the modern pueblos and the women still sing at their work but without the accompanying flute. Before grinding, the corn is often parched or roasted.

The wafers mentioned probably refer to piki, the paper-thin bread made of corn meal of various colors which when rolled or folded is easily portable and keeps indefinitely. This bread is now cooked on a piece of sheet iron or as formerly on thin slabs of stone. Tortillas, having the shape and thickness of pancakes, are also popular. The Hopi place pots of mush in holes in the ground which have been heated by a fire and cover them with ashes and hot coals until they are thoroughly cooked. At Zuñi and along the Rio Grande, the Mexican dome-shaped ovens are generally used.

Hunting. The eastern Pueblos, those at Taos, Picuris, and Pecos especially, used to make expeditions to the Plains, principally along the Canadian and Arkansas Rivers, to hunt buffalo. Such trips could be made safely only by a large number of men and with the greatest precaution against surprise by the Plains tribes. They were under the control of the war chief

as were all communal hunts. The communal hunting of antelope, deer, and elk, because of their scarcity, has disappeared in recent years, but such hunts for rabbits are still maintained. The men, women, and boys surround a large tract of suitable land, drive the rabbits toward the center and then kill them with bows and arrows and with throwing sticks. These clubs resemble in form the Australian boomerang but do not have the particular character which makes that implement return to the thrower. Deer and antelope may have been hunted in a similar manner, but Capt. Bourke in 1881 saw corrals of brush near the Hopi mesas into which antelope were driven. Still hunting by individuals was, of course, practised. Mr. Cushing tells in detail how fetishes were used in such hunts.

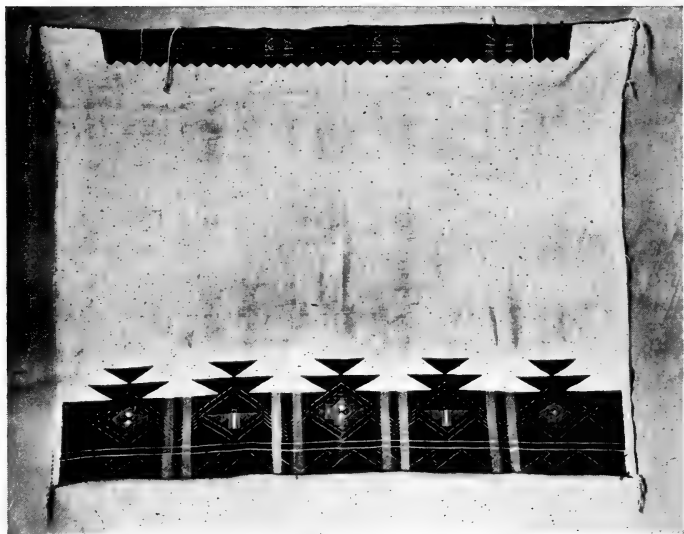
Fish were taken for food in the Rio Grande region where there seems to be no taboo against their use. The Zuñi share with their nomadic neighbors, the Navajo and Apache, a dread of anything living in the water. One of the most interesting phases of Southwestern life was the relation existing between the sedentary and nomadic peoples. We are told by the Coronado writers and by Espejo that the nomadic peoples of the Plains and of the mountains of the Southwest brought the meat and the hides of buffalo and deer to the pueblos and exchanged them for mantles of cotton and for corn. This exchange of products allowed one people to concentrate upon agriculture and the other upon hunting, yet each to have both corn and meat for food, and cotton cloth and dressed skins for clothing.

DRESS.

The dress of the sedentary Indians of the Southwest changed but little from the time it was first described in the sixteenth century until the American occupation

and railroads brought other styles and cheaper materials.

In the northeast, at Taos, Picuris, and Pecos, skins were almost, if not quite exclusively worn. The men were described as wearing small shirts with fringes, and robes of buffalo skin decorated with painted designs. The women's clothing of these particular pueblos is not mentioned at an early date but at the present time the



Hopi Robe.

long deerskin dresses of the Plains type are occasionally seen at Taos. The dress of the men at this pueblo is hardly to be distinguished from that worn by the Indians of the Plains; long leggings, of fringed deerskin, or of red or blue flannel, are still generally worn. The breech cloth of similar flannel is wide and long, hanging nearly to the ground. Deerskin shirts, which are less common, are of the usual Plains types.

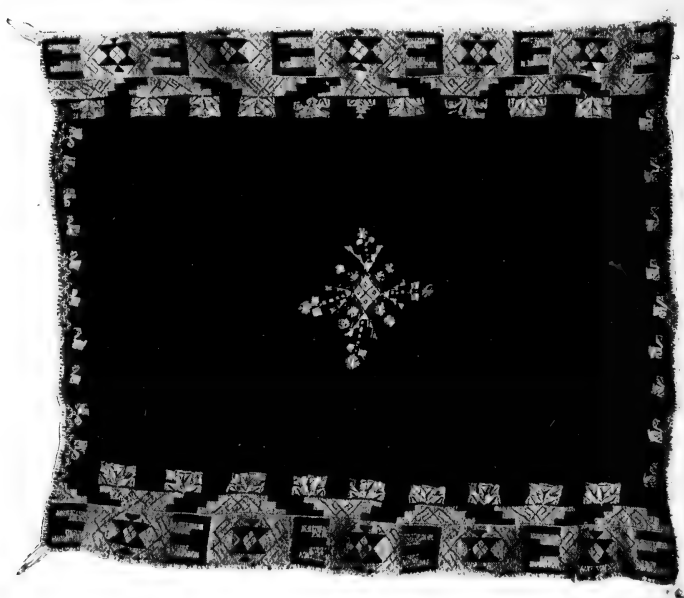
For all the other pueblos, the sixteenth century dress of the men was an apron or kilt. These were of cotton and are described as resembling napkins of that period but having tassels at each corner. Kilts which are probably similar to these are still worn as ceremonial garments. At the present time a short, narrow breech cloth of white cotton, falling only a few inches from the belt before and behind, is the only essential garment for men at hard work or engaged in ceremonies.

A robe of some sort is an important adjunct at all ordinary times regardless of the season. In Coronado's time these robes were of cotton, woven rabbitskins, dressed skins, often buffalo, and turkey feathers fastened to a net. Large flocks of turkeys used to be kept chiefly, if not solely, to supply feathers for these garments. Feathered garments have not been in use for many years and woven rabbitskins are rarely employed. The weaving of cotton and woolen goods is still practised by the Zuñi and Hopi but the woolen blankets of the Navajo and the gay colored fabrics of the traders have largely displaced them.

The man's costume consists of white cotton trousers coming some inches below the knee, but split on the outer side, and a cotton shirt falling over the trousers, girded with a cotton belt.

The woman's dress as first described, consisted of a single garment, of yucca fiber at Zuñi, but of cotton elsewhere, which reached from the shoulders to the knees. It was fastened over the right shoulder but open at the left where two tassels hung. A belt was worn at the waist. Later, the material was changed to wool, dyed blue or black and woven diagonally, but the form remained the same until a few years ago. It is still worn on ceremonial occasions and generally by the older Hopi and Zuñi women. Specimens of the

old cotton dresses embroidered in colors with woolen yarn are still in existence. The Museum has a few excellent specimens of these which came from Acoma. An undergarment of white cotton was adopted by the women in the Rio Grande region and is worn so that the lace border shows below the outer skirt.



Woman's Dress. Acoma.

The hair of the Zuñi women was described by Castañeda as done up above the ears in large whorls. The practice is still maintained in Zuñi ceremonies and by the Hopi maidens who are thus distinguished from the matrons who wear their hair in two braids. Both men and women, except at Taos and Picuris, wear the front hair banded above the eyes and the side locks cut square,

even with the mouth. On the Rio Grande, the men frequently tie their hair with yarn, in two folded clubs, while the Zuñi men make one club of the long hair. At Taos the braids are wrapped with fur or flannel as is the custom of the Plains Indians. The hair of both men and women is frequently washed with yucca root suds.

The moccasins of both men and women have hard soles, a fact emphasized by Castañeda as new and important, who adds that buskins reaching the knee were worn in winter. These are still found in the Rio Grande villages but more generally the women's moccasins are now provided with a long strip of deerskin which is wrapped many times around the lower leg. They are whitened with white earth. Under these leggings are worn footless stockings knit of black or blue woolen yarn.

The ornaments of turquoise and sea shells worn in the ears and about the neck in earlier times were later supplemented by silver beads of native manufacture. The earrings of inlaid turquoise mosaic mentioned by the early Spanish writers are still worn by the Hopi.

The native cotton originally employed in clothing was largely cultivated by the Hopi and to some extent on the Rio Grande below Cochiti in Coronado's time. Very little cotton is now grown. Wool was introduced with sheep at an early date, for we know there were large flocks at the time of the rebellion.

INDUSTRIAL ARTS.

Pottery. The household vessels of the modern pueblo peoples are mostly of clay. These are used for transporting and storing water and for the storage, cooking, and serving of food. For making them, the clay found commonly in the Southwest is tempered with pottery fragments finely ground. When suffi-

ciently softened with water, a lump of this is hollowed to form the nucleus of the bottom of the vessel. To this, round after round of clay, rolled into a slender cylinder, is applied and made to adhere by pressure.



Santa Clara Woman Firing Pottery.

(Copyrighted by Fred Harvey.)

The interior and exterior surfaces are modeled with the hand and smoothed with a piece of gourd shell. Water must constantly be applied to keep the clay in workable condition. When the vessel has been built in this manner to the desired size and shape, it is allowed to dry thoroughly in the sun. It is prepared for orna-



3554.

San Ildefonso Pottery.

mentation by polishing it with a pebble and giving it a thin slip of fine clay after which it is repolished. The designs are then painted on by means of a brush of yucca fiber or a sharpened stick.

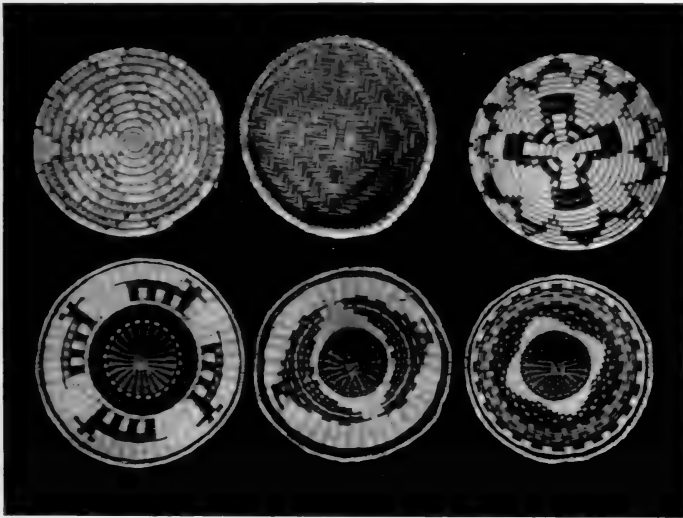
The vessels are fired by placing several of them bottom side up on small stones and covering them with dry sheep manure which is used for fuel. This maintains a uniform and continuous heat until they are properly burned. If the smoke is confined by adding a supply of fresh fine material at the right time, the carbon of the smoke unites with the paint and produces the black ware characteristic of Santa Clara.

This uniformly black ware gains in graceful form what it loses in gay colors. At San Juan a peculiar form is a pot, red above and undecorated below. This red applied as a slip is also sometimes used as a background on which designs in other colors are painted. The more common background, however, is the cream color of the uncolored clay to which rarely a little red is added, producing pink. The designs are painted on in black, obtained from the juice of the bee weed, and in red and yellow derived from ochre.

These designs are partly geometrical and purely decorative; partly representations of mountains, clouds, and rainbows, so highly conventionalized as often to appear purely geometrical; and partly realistic representations of flowers and animals. Among the latter are most frequently found those which are of economic value, or of ceremonial importance, such as the sunflower, the cotton plant, the parrot, and the turkey. The larger animals like the antelope, frequently seen on Zuni water jars, have the positions of certain internal organs indicated.

The background of the Hopi pottery has a characteristic yellow tone. The upper portion of the bowls is often drawn in sharply making the top nearly flat. The designs, which are of the same general sort found in Rio Grande pottery, are executed in a peculiar style. In recent years both the shapes and the decorations

have been considerably modified to meet commercial demands. This is especially to be noted in the more frequent use of symbols which belong more properly to ceremonial objects.



Hopi Baskets.

Basketry. Baskets of plaited yucca leaves attached to a heavy wooden rim, quite similar to those found in the prehistoric ruins, are still made by the Zuñi and Hopi. Rude carrying baskets and cradles with a basketry band for the protection of the head are in general use. The Hopi make decorated, nearly flat trays, but those of Oraibi are strikingly different from those at the middle mesa. The latter use the coiling method and employ very thick foundation coils. The Oraibi make use of wicker work with the foundation material radiating from the center. These flat baskets are used in ceremonies certain features of which the decorations often symbolize.

Weaving. Recently, weaving, which flourished in earlier centuries, has declined; at first because of the large output of the neighboring Navajo and later from the introduction of European goods. The garments needed in the ceremonies are still made by the Hopi and every bridegroom must weave or have woven a trousseau for his bride. The Hopi, and probably others of the Pueblos, beside the diagonally woven women's dresses with raised diamond patterns, made large robes. Those characteristic of the Hopi were decorated by



Hopi Pottery.

narrow horizontal stripes, chiefly of blue. The implements and processes are those still employed by the Navajo and will be described in that section. By the Hopi spinning and weaving are looked upon as the work of the men and are generally done by them in the kivas.

DECORATIVE ART.

Decorative art is chiefly displayed in freehand painting on the surface of pottery vessels. The geometrical patterns are well devised and well executed. Both flowers and animals are reproduced with no attempt at perspective, real talent or genius in drawing never being

displayed. Apparently the older art gave way under European influences to new forms which for some reason have not reached the perfection of the old seen in the black and white ware from the Tularosa ruins and the excellently colored vessels from the Little Colorado. Since we know certain of the villages in the latter region were deserted at an early date, we are justified in concluding that this art reached its climax near the beginning of the historic period.

Symbolic art, while found upon pottery, is particularly developed in ceremonial painting and carving. Cloud symbols in which semicircles stand for clouds, zigzag arrows for lightning, and vertical lines for rain are common, and many other conventions are employed. The prayer bowls and the wooden headdresses worn in dances often have their tops fashioned in terraced rectangles which in the east represent both mesas and mountain peaks and stand in general for the earth, but are clouds to the Zuñi and sunladders to the Hopi. In the dry or sand paintings, described in another section, excellent flat representations of animals are produced.

It is difficult in a sentence or a paragraph to give the reader an adequate conception of the extent to which color and number enter into the myths, songs, prayers, and ceremonial observations. All important things are repeated for each of the cardinal points with changing color and symbolism. The movements in ceremonies are from the north to the west or counter clockwise. The colors are yellow for the north; blue for the west; red for the south; white for the east; all colors for the zenith; and black for below. These conceptions of color and number while put to a ceremonial use are almost certainly aesthetic in their origin.

SOCIAL ORGANIZATION.

It is now recognized that with people everywhere, as well as with ourselves, the biological family consisting of the father and mother with their children is the all important unit in social organization. When these children marry they may, without regard to sex, remain in the parental home with their spouses and children, or they may leave, founding new homes. Among some peoples the prevailing practice is for the sons only to remain with or near their father's home, while the daughters go with their husbands to other localities. The reverse frequently happens, that daughters remain and the sons-in-law are joined to the growing family. Among the Hopi and Zuñi, at least, this latter practice prevails. The young man, when accepted, comes to live with his wife's family. Later, his wife secures or builds for herself a new house or a set of rooms which usually adjoins her mother's. This house is her property and a dissatisfied husband in the case of a separation leaves his wife in possession of the family home and returns to the house of his mother or a sister.

Descent is chiefly reckoned through the mother and the counting of relationship in the female line is maintained from generation to generation indefinitely. All the members of such a group consider themselves relatives of a kind and degree appropriate to the ages and generations of the particular individuals. These groups of people who consider themselves related through their mothers are generally referred to as clans.

Not only does a form of relationship prevail throughout such groups, with appropriate terms of relationship, but this relationship is considered to be of such a degree that marriage between two members of the same clan cannot be considered. Technically the clans are

exogamous, or in other words they are "incest groups." It would be perhaps impossible for such large groups to exist and function without a name by which they can be distinguished or designated. Notwithstanding that the villages are numerous and widely scattered, and that four distinct languages are spoken in them the names associated with these clans are in meaning the same or at least similar. According to Professor Kroeber the names and associations are as follows:

1. *a*, Rattlesnake, *b*, Panther; 2. *a*, Deer, *b*, Antelope; 3. *a*, Squash, *b*, Crane; 4. *a*, Cloud, *b*, Corn; 5. *a*, Lizard, *b*, Earth; 6. *a*, Rabbit, *b*, Tobacco; 7. *a*, Tansy Mustard, *b*, Chaparral Cock; 8. Kachina, *a*, Raven, *b*, Macaw, *c*, Pine, *d*, Cottonwood; 9. *a*, Firewood, *b*, Coyote; 10. *a*, Arrow, *b*, Sun, *c*, Eagle, *d*, Turkey; 11. *a*, Badger, *b*, Bear; 12. *a*, Turquoise, *b*, Shell Coral.

While these precise designations do not occur in every instance they are clearly representative of the general meaning of the clan names.

It will be noticed that these clans are grouped, usually in pairs. This grouping is more than merely formal since a definite degree of relationship is felt to bind together the members of one of the pair to the members of the other. This is in some instances so strong that the pair have become one exogamous group and no intermarriage takes place. This is true among the Hopi of the Kachina and Parrot clans. In the villages on the Rio Grande the clans are grouped into two divisions or moieties known as the winter people and the summer people. This separation of the people and the year into two divisions plays a prominent part in social games, in political matters, and in the ceremonies.

These clans seem to serve two functions in the community. In the first place they are similar to families,

only they are larger groups with more slender ties binding them together, and only one parent, in this case the mother, is considered in reckoning the relationship. The relationship tie, however, is sufficient to carry the right of special hospitality. Secondly, certain political and religious duties devolve upon clans as such or upon individuals because of their clan membership.

The clans have no definite organization or officers, nor do they own houses or other secular property. Each clan owns a fetish which is kept in a certain house and cared for by the householder. It results that these particular houses and persons become centers of interest for the respective clans. Among the Hopi certain eagle nests are the property of particular clans. In the large villages, such as Zuñi and Oraibi, a localization of clans in the community structure results from the natural spread of the family in which the women own the houses and women who are related by blood choose to live side by side.

Nothing is known concerning the origin of these clans. There are similar social divisions elsewhere in North America and other parts of the world. They are best considered as purely social phenomena either as larger family groups or as subdivisions of the political or ethnic units. It is certain that the clans in the Southwest could not have resulted in the manner related in the myths of the Hopi. The wide distribution of these clans in the Southwest with names of common meaning makes such an origin next to impossible.

SOCIAL CUSTOMS.

The Hopi baby is first washed and dressed by its paternal grandmother or by one of her sisters. On the day of its birth, she makes four marks with corn meal on the four walls of the room. She erases one of these

on the fifth, tenth, fifteenth, and twentieth day of the child's life. On each of these days the baby and its mother have their heads washed with yucca suds. On the twentieth day, which marks the end of the lying-in period, the grandmother comes early, bathes the baby, and puts some corn meal to its lips. She utters a prayer in which she requests that the child shall reach old age and in this prayer gives it a name. A few of the women members of the father's clan come in one at a time, bathe the baby, and give it additional names. After the names have been given, the paternal grandmother goes with the mother and the child to the eastern edge of the mesa, starting so as to arrive there about sunrise. Two ears of white corn which have been lying near the child during the twenty days are carried with them. The grandmother touches these ears of corn to the baby's breast and waves them toward the east. She also strews corn meal toward the sun, placing a little on the child's mouth. As she does this, she prays, uttering in the course of her prayer the various names which have been given to the child. The mother goes through a similar ceremony and utters a similar prayer.

The names given relate in some way to the clan of the one who bestows them. Of the various names given the child, one, because it strikes the fancy of the family, generally sticks and becomes the child's name which is retained until the individual is initiated into some ceremony. This usually takes place between the ages of fifteen and eighteen. At that time, a new name which is usually retained throughout the individual's life is given by the man or woman who is sponsor for the novice.

At the present time at least, the Hopi young people arrange their own marriages. When their minds are

thoroughly made up, and the young man has acquired some property, the parents are informed of the matter. Marriages usually take place in the fall or winter. The first step is for the mother of the girl to accompany her to the young man's house with a tray of white corn meal. She gives this to the young man's mother, and returns to her home. The girl remains and grinds corn for three days. In the morning of the fourth day, the relatives of the couple assemble at the bridegroom's house. The two future mothers-in-law prepare two large bowls of yucca suds. With one of these the mother of the girl washes the boy's head and the boy's mother does the same for the girl. The other female relatives present assist in rinsing the suds from the hair.

When the washing is finished, the bridal pair take a pinch of corn meal and walk silently to the eastern side of the mesa. They breathe upon the corn meal, throw it toward the rising sun, and utter a short prayer. When they have returned to the young man's house, the marriage itself is considered complete although the ceremony is not. The girl assists her mother-in-law in preparing a breakfast which is eaten by the members of both families. After the meal, the father of the young man runs out of the house and distributes bolls of cotton to the friends and relatives who are expected to separate the seeds from the cotton.

A few days later, the crier announces that the spinning of the cotton is to take place. The men relatives and friends gather in their kivas and spend the day in carding and spinning cotton which they bring in the evening to the bridegroom's house where they partake of a feast. From the cotton yarn prepared in this way, the father of the bridegroom, assisted by the other men of the family, weaves two large white robes and a white fringed girdle. A pair of moccasins provided

with long deerskin strips is also made. The blanket and the moccasins are coated with white earth. When the outfit has been completed, which usually takes six or seven weeks, the bride is dressed by her mother-in-law in the moccasins and one of the robes. The other robe, wrapped in a reed mat, she takes in her hands and goes to her mother's house, where her husband also appears during the day. They live with the girl's people for some months until a new home is made ready.

The preparation of clothing for the bride by the bridegroom or men of his family is evidently an old custom, for Castañeda mentions it as being the practice in his day on the Rio Grande. Villagran, who in 1610 wrote a long poem on the conquest and settlement of New Mexico, describes a wedding during which the robes of the pair were tied together. A similar rite is still maintained at Santo Domingo.

Among the Zuñi the bride receives a present from the bridegroom and frequently carries presents to her mother-in-law during a period extending over a year or until her first child is born. The bridegroom's first visits to the home of his new wife are clandestine and the bride herself avoids her family in the morning, apparently from motives of shame. The man soon takes up his regular abode at the home of his wife and works for the benefit of her family. While the Zuñi relations are strictly monogamous the marriage tie is fairly brittle. It is always the husband who leaves, since the house is the woman's permanent home.

Among the Rio Grande villages the Catholic marriage ceremony is usually conducted.

When an adult dies among the Hopi, the nearest relatives by blood wash the head, tie a feather offering to the hair so that it will hang over the forehead, wrap

the body in a good robe, and carry it to one of the graveyards which are in the valleys near the mesas. The body is buried in a sitting position so that it faces the east. This is done within a few hours after death has occurred. The third night, a bowl containing some food, a prayer stick offering, and a feather and string offering are carried to the grave. The string is placed so that it points from the grave toward the west. The next morning, the fourth, the soul is supposed to rise from the grave, and proceed in the direction indicated by the string where it enters the "skeleton house." This is believed to be situated somewhere near the Canyon of the Colorado.

The bodies of children who have not yet been initiated into some society are not buried in the ground but are placed in a crevice of the rock somewhere in the side of the mesas and covered with stones. The string offering in this case is not placed pointing toward the west, but toward the house where the family lives. The spirit of the child is believed to return to the house and to be reborn in the body of the next child, or to linger about the house until the mother dies, when it accompanies her to the world of the departed.

Among the Zuñi it is the relatives of the father of the household who have the duties connected with death and burial. The bodies are placed in the churchyard, the men on the south side and the women on the north side with the head to the east, which is also the position of burial among the Keresans. The souls are supposed to go in four day's time to the sacred lake 65 miles southwest of Zuñi. After this interval, a purification of the family and their belongings takes place. The personal property of the deceased, which is not required for the proper dressing of the corpse, is burned or buried apart on the river bank. The name of the dead is not

mentioned but indirect reference by a phrase is made if necessary.

POLITICAL ORGANIZATION.

The political government of each Rio Grande pueblo is in the hands of a governor, council, and a war chief. The governor, chosen annually by a formal election, is in reality named by the cacique, a permanent officer whose duties are chiefly religious. There is usually also a lieutenant governor chosen in the same way. The war chief too is appointed annually and confirmed by the council.

This council, which is the legislative body, is permanent in some pueblos but elected annually in others. It is believed by some to be a survival of an earlier council in which each of the clans was represented by its head.

The governor is the representative of the village in its dealings with other villages and with the general public and is its nominal head. The war chief directs all communal work such as that on the irrigation ditches and the communal hunt. In earlier times he led the war expeditions and had charge of the defense of the pueblo. He is the executive officer of the council and carries out its decrees. These frequently have involved the death of persons suspected of witchcraft.

The Hopi pueblos each have a village chief, a crier chief, and a war chief who hold their positions for life.

The older methods of defensive warfare are well illustrated in the accounts of conflicts between the Spanish and certain pueblos in the sixteenth century. At Zuñi the men withdrew to the house tops and pulled up the ladders. When the Spanish advanced within reach, arrows were discharged and stones were thrown down. The women, children, and old men had been

sent to other villages or to Thunder Mountain. Similar methods were resorted to at Tiguex, where a besieged pueblo held out for many months because occasional falls of snow furnished a fresh supply of water. Pecos, which had a wall and a spring inside, was said by Castañeda to have resisted successfully the attacks of Plains Indians.

The weapons used were bows and arrows, a stone-headed club, and a stick half a yard long, set with flints, which Espejo says would split a man asunder. For the protection of the warriors, shields of rawhide, leather jackets, and head pieces of leather are mentioned.

RELIGIOUS PRACTICES.

The religious activities of the sedentary people of the Southwest are so many and so intricate that it is difficult to describe or discuss them, especially in so limited a space. There are some common elements, however, which are worthy of notice. The ceremonies often take the form of dramas in which the movements and activities of supernatural beings and animals are imitated. The actors wear masks, paint their bodies, and conduct themselves according to the supposed appearance and character of the divinity or animal represented. The divinities are also represented by large stone images rudely shaped and by smaller ones which are better executed in soft stone or wood.

There are permanent shrines usually near the villages, often walled in on three sides and sometimes sheltering an image or a peculiarly shaped stone. Temporary altars are made during the ceremonies by setting up a line of wooden slabs carved or painted with religious symbols before which dry paintings are placed. These dry paintings are made by sprinkling sand of

various colors so as to form symbols and pictures of the gods.

Small sticks, singly or in pairs, are painted and often have faces indicated on them. Feathers, and a corn husk containing corn meal and honey are usually attached to them. They are placed at the shrines and springs for the deities. Corn meal and pollen are strewed and thrown toward the sun. Corn meal is also frequently used to mark ceremonial trails and to define the limits of sacred places. Races generally occur during the ceremonies but the significance of them is not clear. Bathing the head and the use of emetics are resorted to as methods of purification.

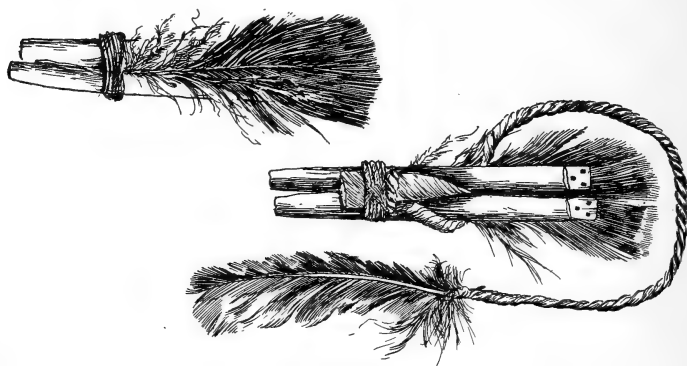
In general it may be said that Southwestern ceremonials chiefly employ dramatic, graphic, and pictorial art to accomplish their purposes, which appear to be the influencing of invisible supernatural powers and through them the natural forces. The greater number of the ceremonies are intended to bring rain and to aid in fertilizing the crops.

RIO GRANDE CEREMONIES.

It is only from Bandelier's short account of his observations among the Pueblos of the Rio Grande published many years ago, the work of Mrs. Stevenson among the Sia, and a recently published paper on Cochiti by Father Noël Dumarest, that we are able to get a view at all comprehensive of the religious organization of the Rio Grande region.

At the head of the political and religious systems is the cacique, as he is ordinarily called. The office, which is held for life, requires years of training and study as a preparation and its duties are arduous. The cacique is expected to devote himself to a life of fasting and prayer. His fasts vary from slight temporary

self-denials to absolute abstinence of four days' duration according to the seriousness of the people's need. He is the mouthpiece of the divinities whom he is called upon by the tribe or by individuals to consult. Because he is believed to speak by divine authority his influence is very great. He names his successor and nominates the civil officers of the village. He is not supposed, however, to enter into petty quarrels nor to take part in minor discussions in the council. That he may be



Hopi Prayer Offerings.

free to devote himself to such a life his wants are provided for by his people who supply him with wood and cultivate a field for his benefit. He has one or two assistants from whom his successor is chosen.

There are many societies more or less secret, which have the knowledge of certain prayers, songs, and rites, which they are expected to use for the public benefit. The most important is a group of societies which are especially devoted to ceremonies leading to success in war. Among the Sia these societies are those of the Panther, Bear, and Knife. Their leader, the war priest, ranks next to the cacique in religious importance.

He holds his office for life and nominates his successor. His duties include the active control of the more important religious ceremonies. The hunters in earlier days were also important since they had the fetishes and the ceremonies by which game could be taken. The panther was their patron for he was looked upon as the most successful hunter. The head priest of the hunters was also a most important person. Finally, the many societies (among the Sia, the Snake, Spider, Ant, etc.) which have the power of healing diseases and producing rain have one head shaman according to Bandelier, whose office gives him great power, particularly in the discovery and punishment of witches.

Then there are two societies or classes of priests, the Cuirana, or winter priests, and the Koshare, the summer priests, to use the Keresan terms. The former by their activities, cause the seeds to germinate, while the latter bring the crops, and all animal and human life as well to maturity. It is the Koshare who act as clowns on all public religious occasions. Each of these societies has a leader who with the cacique and the head priest of the warriors, hunters, and healers, constitute a most important sacerdotal group.

All male adults are expected at some time to participate in the kachina dances. Masks and headdresses are worn to represent a special class of supernatural beings, the greater number of whom at least are the souls of the dead. They are the senders of the rain and therefore the bringers of good fortune and happiness. Boys go through an initiation which consists of a beating and then one of the dancers unmask that the child may see that the gods are not present in person as he has formerly supposed. The women in theory are never supposed to know that the masked dancers are not in reality the gods they appear to be.

Sia Rain Ceremony. Mrs. Stevenson who witnessed several of the ceremonies of the Sia has given a full description of the rain ceremony of the snake order. Prayer sticks notched and colored were prepared for offering. An altar with a dry painting representing clouds by terraced semicircles was made. On it were placed several fetishes and a clan or society emblem called *yaya* which is a perfectlykerneled ear of corn entirely covered with feathers.

The ceremony proper begins with the strewing of a line of corn meal from the altar to the door over which as a road the spirits of the gods are supposed to travel and temporarily enter the fetishes. There is much singing, dancing, and praying, mostly by individuals rather than in concert. In a bowl of water to which ground yucca roots have been added a suds is made which represents clouds. Pollen is sprinkled into this bowl and the foam is scattered over the altar.

By means of songs and prayers the gods who dwell in six sacred springs are invoked that they may incite the cloud people to action. By each of these springs there is supposed to be a hollow tree through which the cloud people carry the water up to the clouds. These clouds are but huge masks behind which the cloud people climb and from which they sprinkle the earth. The thunders are also invoked. They are thought to be beings with tails and wings of obsidian which clash and make the noise and incite the cloud beings to greater activity.

When the ceremony is finished the sand painting is obliterated and the prayer sticks carried to a near-by shrine where they are left for the deities. The notches upon these sticks and the painted designs are supposed to convey the message, the attached feathers being given in payment for the favor besought.

Festivals. The public ceremonies of the Rio Grande pueblos have taken on the names and some elements of Catholic festivals. They occur on fixed dates which are also the days sacred to their patron saints. There are probably always preliminary activities held secretly in the kivas which are in part rehearsals, during which,



Clowns Climbing Pole. Taos.

however, prayers are said and acts of worship performed. The last day is devoted to a public spectacle largely attended by visiting Indians, Mexicans, and others.

The ceremony at Taos occurs on September 30th. The image of the saint is brought from the church and placed in an elevated booth overlooking the plaza in which the ceremonies take place. A tall pole erected for

the purpose has a great variety of vegetable products, cooked and in their natural state, fastened to the top of it, where also is suspended the carcass of a sheep which has in recent years taken the place of that of a deer. The forenoon is devoted to races in which young men from the two large houses compete in relays. The victory is a community one and not individual. The winners are pelted with food by the losers. In the afternoon the clowns appear, men grotesquely dressed and painted, who act as offensively as possible. They take the lunch baskets from women and empty them, tear the clothing from a man, or throw him fully clad into the stream, and enter any house they choose. Finally, they approach the pole as if tracking an animal, attempt to shoot toy arrows to the top, tug at its base as if trying to uproot a tree, and at last make attempts to climb it which succeed for one of their number who secures the food for his fellows. As a whole the ceremony is evidently intended as a consecration of the harvest and an expression of thanksgiving for it.

ZUÑI CEREMONIES.

At the head of the Zuñi community is a priesthood presided over by the priest of the north who is foremost among the Zuñi in both religious and political activities. The priest representing "the above" is known as the Pekwin, the deputy of the sun, and the representative of "the below" is the head bow priest, corresponding to the war priest of the Rio Grande villages. These priests hold office for life. They directly supervise the ceremonial life of the Zuñi and appoint the governor and lieutenant governor with their deputies who hold office from year to year. Each head priest has associated with him assistants who in time may succeed to the head priesthood itself. Mainly it is the duty of this

priesthood to fast, to pray, and in other ways to induce rain, insuring the success of the crops and thereby the general happiness of the people.

At death they are succeeded by one of the secondary priests associated with them, usually a relative, brother or son. Because the office does at times pass to a son the position does not belong to a definite clan. The Pekwin however is an exception since he is chosen from the Dogwood clan by the heads of the fraternities. He is the more active of the priests in the control of the ceremonies. He determines the calendar by observing the place of the rising and setting of the sun, and proclaims accordingly the time when the ceremonies shall be held.

The priests of the bow have a representative in each fraternity, but they together constitute a semi-priesthood with an elder and younger head priest. These two are the representatives of the war gods. To be eligible as a bow priest the candidate must have taken an enemy's scalp. These war priests are connected with the thunder and are therefore directly concerned with weather control.

Every Zuñi man has in his boyhood been initiated into an order or fraternity, which includes, therefore, the entire adult male population. At this initiation the boy has as a sponsor the husband of the woman who was present at his birth. The boy becomes associated with the one of the six groups, into which all Zuñi men are divided, to which this sponsor belongs. Each of these groups is associated with a kiva or assembly room of a somewhat sacred character. These organized groups of the Zuñi, directed and presided over by the priesthood, perform the ceremonies and carry on the religious activities of the village.

There are also twelve fraternities concerned chiefly with the curing of disease. Their membership is recruited by taking in those whom they have treated for some ailment. Each fraternity has four directing officers one of whom is a bow priest. These fraternities assist in the ceremonies, particularly in supplying the chorus and the leader of the dancers. Members of one



Deer Dance. Nambe.

of the fraternities, the Newekwe, perform as clowns in a manner similar to the "Delight Makers" of the Rio Grande villages. Similar in their activities to this fraternity are the Koyemshi, but instead of being lifelong members of a fraternity or priesthood they are chosen annually. Their leader is appointed by the head rain priest and selects nine others, members of his own fraternity.

The Zuñi year is well filled with public ceremonies the main feature of which is a procession of masked dancers accompanied by a choir of singers and by the antics of the priest clowns. The most impressive of the ceremonies is Shalako which occurs in December. There are some phases of this ceremony which suggest a European and Catholic origin.



Hopi Kachina Dolls.

HOPÍ CEREMONIES.

Among the Hopi two types of ceremonies are held at separate seasons of the year. The kachina ceremonies begin with the winter solstice and terminate in midsummer when a farewell ceremony called the Niman kachina is held. Shortly after, the second series is opened with either the snake dance or the flute ceremony and others follow until November when the new fire ceremony completes them. Kachinas are super-

natural beings, who during the period when their dances are held, are believed to visit the Hopi. When this season is over, they withdraw to their homes in San Francisco Peaks and elsewhere. They are represented in the dances by men who are masked and painted to correspond to the traditional conception of the appearance of each kachina. Small wooden images, carved,



Snake and Antelope Priests.
(Photo by Howard McCormick.)

painted, and decorated with feathers are also used to represent them. These dolls, after the Niman kachina is held, are given to the children to play with.

Ceremonies in which the kachinas appear are of two kinds. The full ceremonies, which are the first held, have in addition to the public performances, several days devoted to secret rites in the kivas, where altars are made. The abbreviated kachinas, which come late in the spring, have only the dances in the plazas. In these dances, the men who represent the kachinas wear,

in addition to the masks, embroidered kilts and sashes. They carry gourd rattles in their hands and have tortoise shell rattles tied to their knees. They move forward slowly in a procession, with mincing steps timed by the rattles. The priests in charge of the ceremonies and others sprinkle corn meal on them and



Snake Priests Dancing with Snake.

(Photo by Howard McCormick.)

pray to them as if they were the real kachina beings. These occasions are enlivened by the pranks of clowns somewhat similar to those of the Rio Grande villages.

The ceremonies of the second series are distinguished from the kachina ceremonies by the absence of masked men and clowns. They are generally spoken of as nine-day ceremonies, although the Hopi themselves consider that they last from the day of the formal announcement until their completion sixteen days after.

All have certain features in common. Altars are made, prayer sticks are prepared and offered at various shrines, and there is much praying and singing in the kivas. During the kiva ceremonies, the participants smoke in turn, addressing each other with terms of relationship as the pipe or cigarette is passed. On the last two days of the ceremony there are usually foot races and public performances.

The Snake Dance. The most widely known of these ceremonies is the snake dance which is held every second year in all the Hopi pueblos except Hano and Sichumovi. The dances of Walpi and Oraibi are those which attract the largest number of visitors. The ceremony is given jointly by the antelope and snake fraternities. The former is chiefly concerned with the rites in the kiva, while the latter, originally a warrior society, gathers and handles the snakes.

To secure the snakes the snake priests go out in pairs provided with digging-sticks, with snake whips of feathers, and with bags of buckskin or canvas. The first day they go to the north, the second to the west, the third to the south, and the fourth to the east, for this is the ceremonial circuit of the Hopi. If a sufficiently large number is not secured during the four days, snakes are sought in any place and at any time until enough are found. Those used are chiefly rattlesnakes, but bull-snakes and others are also employed. The snakes are usually found by following their trails in the dust. If a snake is uncoiled a little corn meal is thrown toward it; it is seized by the neck, stroked gently, and placed in a bag. Should the snake coil, a prayer is said and tobacco smoke is blown toward it until it uncoils. If the trail of the snake leads to a hole it is dug out with a digging-stick. The snakes gathered are confined in pottery vessels in the kiva until they are wanted for the ceremony.

Both the snake and the antelope priests make altars in their kivas. The snake altar is made at Oraibi on the evening of the first day. The head priest brings into the kiva two wooden images of great apparent antiquity. The larger represents Pookong, the elder of the war god twins; the smaller may be intended for his brother, or for some other divinity. Near these are placed small images of the panther, the fetish of the warriors and hunters. At Walpi, and at Oraibi if a candidate is to be initiated, a sand painting is also made. This has a picture of a panther in the center, a snake on each of the four sides and a frame of four colored bands. Although each band extends entirely around the painting, the outer one which is yellow represents the north; the second, the green one, the west; the third, red, the south; and the inner one, which is white, the east. These are the colors which the Hopi always associate with the world quarters.

The antelope altar is made in another kiva on the fifth day of the ceremony. The painting consists of a number of semicircular cloud terraces, with a similar border of colored bands. On two sides are rows of sticks, some of them curved, which represent the deceased members of the order. At the back of the altar are the fetishes and the tiponi, the society symbol, kept by the head of the order as a badge of his office. Around this altar a most important rite is held. One of the priests and a woman relative of some member are especially dressed and impersonate antelope man and antelope maiden. The snake priests enter bringing a snake which the antelope man holds during the ceremony. The priests smoke, blowing the smoke toward the altar; clouds of tobacco smoke are also blown from a cloud blower; and a priest appointed for the purpose sprinkles a specially prepared liquid

upward and over the altar. Many prayers are uttered and eight songs are sung. This ceremony is repeated each morning after the fifth, throughout the ceremony. A messenger is sent out each afternoon with prayer offerings to be placed on the various shrines. The first day he visits the most distant ones making a circuit of many miles; on the three remaining days the distances are decreased. On the afternoon of the seventh day water is brought by a messenger from a distant spring. Before the water is taken a prayer stick is set up and the following prayer is uttered:

Now, then, this here (prayer offerings) I have brought for you. With this I have come to fetch you. Hence, being arrayed in this, thus rain on our crops! Then will these corn-stalks be growing up by that rain; when they mature, we shall be glad over them. Then these our animals when they eat will also be happy over it. Then all living things will be in good condition. Therefore do we thus go to the trouble of assembling. Hence it must be thus. Therefore have pity on us. Now let us go! We shall all go. There let no one keep any one back. You all follow me. (Voth, 320.)

In the early morning of the two last days of the ceremony, two snake priests dressed as warriors pass four times around each of the kivas and enter them. They have in their hands bullroarers and lightning frames. The first are sticks fastened to a string which when rapidly whirled make a noise like falling rain. The lightning frames consist of a series of crossed sticks so joined that they may be quickly projected to a considerable distance and then rapidly returned. These warriors and the messenger who has brought the water the day before, go down on the plain a mile or two from the village. The messenger first makes cloud symbols, deposits a prayer stick and utters a prayer at four places some distance apart. When he reaches the fourth place the two warriors advance toward him, swinging their bullroarers and shooting

out the lightning frames. When they reach the fourth place of offering, the runners start toward the village. The first one passing the messenger is given the netted gourd containing the water brought from the distant spring. This he must surrender to any one passing him so that the winner arrives with it at the village. As the runners approach the mesa, they are joined on the eighth morning by antelope priests and on the ninth morning by snake priests. Boys follow them up the mesa trails with freshly cut cornstalks. When the runners have passed, the girls of the village snatch these corn stalks from the boys and carry them to the houses to be used as decorations.

About noon of the ninth day an interesting feature of the ceremony takes place in the snake kiva. A liquid is prepared in a vessel kept for the purpose and the snakes are dipped into it. At Oraibi they are placed on some sand to dry in the sun where at that hour it shines through the hatchway. At Walpi, however, they are thrown with considerable violence upon the sand painting of the altar.

Public performances in the plaza take place in the afternoon of the eighth and ninth days. The antelope priests first come from their kiva, and go in procession four times around the plaza. As they pass in front of a booth which has been provided for the snakes, each man stamps on a plank which has been placed there to represent the place of exit from the lower world. When the fourfold circuit has been completed, they form in a line at either side of the booth. The snake priests then come out and make a similar circuit four times around the plaza and form in a line facing the booth and the antelope priests. Each line is led by its head priest. The antelope priest is also accompanied by a sprinkler who carries a vessel filled with liquid.

On the eighth day, the lines dance for some time facing each other and then the sprinkler goes to the snake booth, takes a small bundle of vines and corn stalks in his mouth and dances with it as if it were a snake. He is guarded by a snake priest. But on the ninth day after the two lines of priests have made the circuit of the plaza the snake priests go in pairs to the booth. One of each pair is given a snake which he holds in his mouth. His companion follows by his side with a snake whip with which he is prepared to soothe the snake and attract its attention should there be need. They move in this way down the plaza for some yards when the snake is dropped. Each pair of dancers is followed by a third snake priest who picks up the snakes as they fall and keeps them in his hands. When his hands are full, he passes some of them to the antelope priests who are still in line. The dancers return for additional snakes until the entire number, fifty or more, have been carried in the dance. The head snake priest then makes a large circle of corn meal and draws six radii which represent the world quarters. Into this circle the snakes are thrown in a heap and the women sprinkle them plentifully with corn meal. At a given signal the snake priests approach, grab as many snakes as they can hold in each hand, run down the trails to the plain, and release the snakes.

In alternate years the flute ceremony is held in the place of the snake dance. This ceremony is given by two orders, the blue and drab flute priests. The final public ceremony takes place at certain springs where songs and prayers are rendered. The rite is characterized by playing on long flutes. An interesting feature of the ceremony is the placing of prayer offerings at the bottom of a deep spring for which purpose a priest enters it.

Following the snake and flute ceremonies are other nine-day ceremonies given by societies of women. During the public performance of one of them, the Marau, the women carry in their hands large wooden slabs on which kachinas, cloud symbols, and ears of corn are painted. Following this is the Ooqol ceremony. Alternating with these two ceremonies, the



The Marau Society Dancing the Mamzraute at Mishongnovi.

(Photo by Dr. R. H. Lowie.)

Lalakonti dance is given. During the public dance of both the Ooqol and the Lalakonti ceremonies, darts are thrown at netted wheels and basket trays are waved in the hands of the dancers. These trays are later given to the spectators.

The last of this series of ceremonies is held in October or November. All the male fraternities join in its celebration. The chief feature is the making of a new

fire by means of a firedrill. While this is taking place, the trails to the village are closed by drawing a line of corn meal across them.

The greater number of the Hopi ceremonies are for the purpose of bringing rain, maintaining the water in the springs, and increasing the yield of the fields. These ceremonies are given by fraternities of priests whose members are recruited by taking in those who have been cured or benefited by the order. A person who has been bitten by a rattlesnake applies to a member of the snake fraternity for treatment. It is then proper for him to be initiated and become a participant in the ceremonies. The leadership in these orders usually passes to a brother or to a sister's son and remains in the same clan. In Hopi thought these fraternities are associated with the clan to which the leader belongs.

RELIGIOUS BELIEFS.

Of the many religious conceptions entertained by the pueblo people of the Southwest certain ones seem to be common to all. It is generally believed that the ancestors of the present people came up from underground to the surface of the world. The Rio Grande peoples say the place of emergence is to the north near the sources of the river by which they live. The Zuñi point to a certain lake in their own neighborhood, the Hopi conceive the place to be in the canyon of the Colorado. The souls of the dead return through the same opening to the underworld in a journey of four days. These souls of the dead are not confined underground but also visit the mountains and the sky where they appear as clouds. The war gods among the Hopi are dwarfs about whom there are amusing tales, but in the east, on the Rio Grande and at Zuñi, they are important deities. There is some evidence that they

are thunder gods. Of the objects of nature the sun seems to hold the first place. Among the Rio Grande villages, however, a mother who still resides at the place of emergence holds a high place among the divinities. That she represents the earth is probable. The winds and the lightning have a place with the clouds mentioned above. There the world quarters are also to be included, but the nature of the concept is vague. Probably persons are supposed to reside in them but certain animals are also associated with the world quarters. Panther is the patron of the hunters, and bear of the healers. These animal gods and others are represented by images large and small. There are the great stone panthers of Old Cochiti and the numerous images and fetishes of the Zuñi.

Besides the small animal representations used as fetishes there are others less definite in form and probably symbolic in character. There is evidence that all the villages, except perhaps some of the Tewa ones, have a fetish for each clan, for each prominent fraternity, and for the head priest. They are perhaps the most sacred objects possessed by the pueblo peoples, and about them centers much of the social and religious life. The Zuñi fetishes are sections of reeds together with various sacred objects wrapped in cotton. They are deposited in a jar which is kept in a room of a house which is the center and place of gathering for the particular group. Each Zuñi individual at the time of his initiation into the society of the gods receives an ear of corn covered with feathers. This is his personal fetish; it is carried by him on certain ceremonial occasions; and is buried on the river bank at his death. The Keresans of Laguna and the Hopi have similar wrapped ears of corn which correspond in use to the Zuñi fetishes of reeds mentioned above. One is owned

by each head of a fraternity and there is one for each clan which is kept in a house which becomes as a result the clan center.

We have then in the Southwest a peculiar jumble of objects which are adored, including natural features, persons, and animals, with the souls of ancestors occupying a prominent place.

CHAPTER III.

THE VILLAGE DWELLERS.

THE PIMA AND PAPAGO.

CONSIDERATION so far has been given to those natives of the Southwest who live or did live in the community dwellings which are large enough to accommodate several or many families.

This very special trait of community building and dwelling distinguishes these people from others in this same region. There are people almost equally sedentary who are, however, housed in one-family buildings grouped into fairly permanent villages.

The Pima and Papago as they are now designated are the most important tribes living in villages of one-family houses. To the Spaniards the territory was known as Pimeria and it was divided into Pimeria Alta and Pimeria Baja. The former was occupied by the Pima and Arizona Papago and the latter by the Papago of Sonora. In early Spanish times there were villages on the San Pedro and Santa Cruz rivers occupied by the Sobaipuri who, as far as we know, are to be distinguished from the Pima and Papago only on geographical and political grounds. If there were differences in language or culture no record of these differences remains. Missions were established among them in the latter part of the seventeenth and the early part of the eighteenth centuries. One of these was at San Xavier del Bac, a village which is now occupied by the Papago. The Sobaipuri were crowded westward by the Apache who occupied Aravaipa Creek, a tributary of the San Pedro. It is supposed the Sobaipuri remnants joined the Pima and were absorbed by them.

The Pima lived along the Gila River, Arizona, for some thirty miles above the junction of that stream with the Salt River. They were in this locality when first noticed in Spanish writings. This date is difficult to establish, but there can be little doubt that the first definite and direct European influence was that exerted by Father Eusebio Francisco Kino who traveled through this region between the years 1687 and 1710. The first description of the Pima is the account of a visit to their villages on November 21, 1697, by Father Kino, accompanied by Juan Mateo Mange, who wrote the official report of the journey. That European goods and influence had reached the Pima indirectly before this time is probable. They were friendly from their very first meeting with the Spaniards, and manifested the same amiability toward the Americans who began to penetrate their country in the second third of the nineteenth century. From the discovery of gold in California until the building of the railroad, their villages were a stopping place for Americans who followed the southern route.

The number of their villages in Spanish and American times has varied between five and ten. It is not to be supposed they would be quite so permanent as the community structures of the Pueblo Indians. In 1902 Prof. Frank Russell enumerated eighteen villages. The U. S. census for 1910 gives the number of the Pima as 4,236.

The Maricopa, a Yuman people, are believed to have joined the Pima early in the nineteenth century. They had been moving slowly eastward for some years under the pressure of the Yuma on the Colorado River. The Maricopa numbered only 386 in 1910. They live on the Salt River and have become entirely assimilated to the Pima except in language and burial customs.

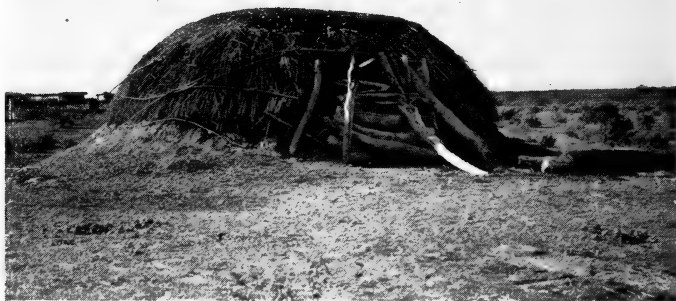
South of the Gila live the Papago. Their villages are situated wherever there is arable land that can be irrigated. They occupy the region south of the Pima for 150 miles or more extending a considerable distance into Sonora, Mexico, and westward quite or nearly to the Gulf of California. The 1910 U. S. census gives the number of 3,793 living in Arizona. The figures for those living in Mexico are not available, but are estimated at about 700. They are not so sedentary as the Pima since in many instances a group maintains a winter village in the mountains where water and forage are more plentiful for their herds, and a summer village for the raising of their crops. Ordinarily, the winter village is the more permanent.

HOUSES.

The dwelling house of the Pima has the shape of a dome or an inverted bowl, considerably flattened. Its circular ground-plan is on the average about 18 feet in diameter. Within this circle four posts are set up at the corners of a rectangle about seven by eight feet. These posts are forked at the top and in the forks rest beams on which lighter cross pieces rest. This framework forms the support for the outer shell which consists of willow poles set in the ground and drawn in at the top to form the flattened dome mentioned above. The willow poles are held in place by horizontal pieces tied in place with willow bark. Over this framework is placed a thatching of brush and straw and on top of that a layer of earth 5 to 10 inches deep. There is only one opening, a low doorway through which one must stoop to enter. No special opening is provided for the smoke of the fire, which passes out of the top of the doorway while the fresh cold air comes in at the bottom. The occupants

either recline or sit to avoid the smoke which fills the domed ceiling.

Situated near the house is usually a flat-topped shade, a type of structure which is nearly universal in the Southwest. In summer the cooking is done outside and no fire in the house is necessary, but in winter a fire is maintained for warmth. The outdoor cooking fire is provided with a simple windbreak, the simplest and most essential type of a domicile.



A Pima Dwelling.

(Photo by Mary Lois Kissel.)

It is said that in former times each village had a community house of structure similar to the dwellings but oval in ground-plan, which in some cases was capable of holding 80 people. No such houses are now standing among the Pima.

The Papago house differs from that of the Pima only in the material and perhaps the size. Instead of cottonwood posts, mesquite is used for the main supports; and ribs of the giant cactus take the place of willow poles. The ceremonial lodges of the Papago are

of the same type as the dwellings but usually larger. It is to be presumed they correspond in use to the oval council houses of the Pima.

The food of the Pima and the Papago in a general way is similar to that of the pueblo dwellers. They live in part upon the domesticated animals and plants and in part upon wild animals and wild vegetable products. For the Papago at least, the proportion of wild food is greater than with the pueblo people. Before Spanish times the cultivated crops were maize, squash, beans, and cotton. Wheat seems to have been introduced at an early date, perhaps even before direct contact with the Spaniards. It is well adapted to the soil and climate and has become the most important of the cultivated crops. Considerable quantities of corn and wheat were furnished to the various expeditions and travelers passing the Pima villages during the middle of the nineteenth century. A small breed of fowls was introduced among the Papago and reached the Pima. Besides they acquired horses, donkeys, cattle, sheep, and goats. As far as the environment would permit, they became Europeanized in the matter of domesticated animals and crops at least a century ago. Oxen with wooden plows are used in some cases for plowing, especially among the Papago. Cattle were never abundant, for until recently it was the custom to kill and eat all the cattle at the death of the owner. They continued, however, the primitive methods of cultivating corn. This is done by turning the water of the rivers, or impounded storm waters, into a ditch by means of which the crops are irrigated. The weeds which grow luxuriantly are removed with a knife-shaped, wooden implement. The water of the Gila has ordinarily a great deal of silt held in suspension which is spread over the valley land by the process of irrigation.

The farms as a result are not only very fertile but they are easily worked, since this deposit is very friable.

Besides using the flesh of the domesticated animals, the Pima and Papago successfully hunted the antelope and deer which were found scattered generally over their habitat. Mountain sheep still are found on the mountains of southern Arizona and northwestern Mexico.

Notwithstanding that much of the country is classed as desert, valuable wild food is secured in large quantities. The most esteemed seems to be the giant cactus or sahuara. The native year begins with the sahuara harvest which is celebrated by one of the important festivals. The fruit is gathered in the early part of July. The ripe fruit is dried and pressed into large cakes consisting of the edible pulp and the small black seeds. The dried pulp is boiled for a long time and ground on a metate before it is eaten. The seeds are separated, ground, and mixed with water to form a gruel. Food in this form, fine ground corn, wheat, or seeds, eaten either dry or mixed with water, is known as pinole in the Southwest. From the fresh sahuara fruit the extracted juice is boiled and allowed to ferment. The wine so secured is a main feature of the harvest festival.

The mesquite furnishes food in considerable quantities. The pods are edible. When dry they are easily pulverized, producing a sweet and very agreeable flour. There are various species of cactus which are used for food. The barrel cactus when crushed furnishes a large quantity of liquid which is a good substitute for water.

The desert flora, moreover, is fairly independent of seasonal rains.

CLOTHING.

One article of the clothing of the Pima and Papago sets them off from practically all other Indians within the confines of the United States. Sandals clearly belong to the south. They are worn in South and Central America and in Mexico. The Pima and Papago wear in summer a sandal of thick rawhide. The prehistoric peoples of the Southwest wore sandals of woven leaves and fiber, as has been noted above, but their use has been retained by none of the other present-day inhabitants of this region. When going abroad for a considerable distance, moccasins are substituted for sandals which give less protection to the feet in this thorn beset country. The men until recently wore during the greater part of the year only these sandals and a small breech-cloth of cotton. In cold weather a deerskin shirt and a cotton blanket or a robe of woven rabbit skins was added. The women throughout the year wear a cotton blanket girded around the waist and falling to the knees. In winter all but the recent widows pull the folds of these blankets over their shoulders.

BASKETRY.

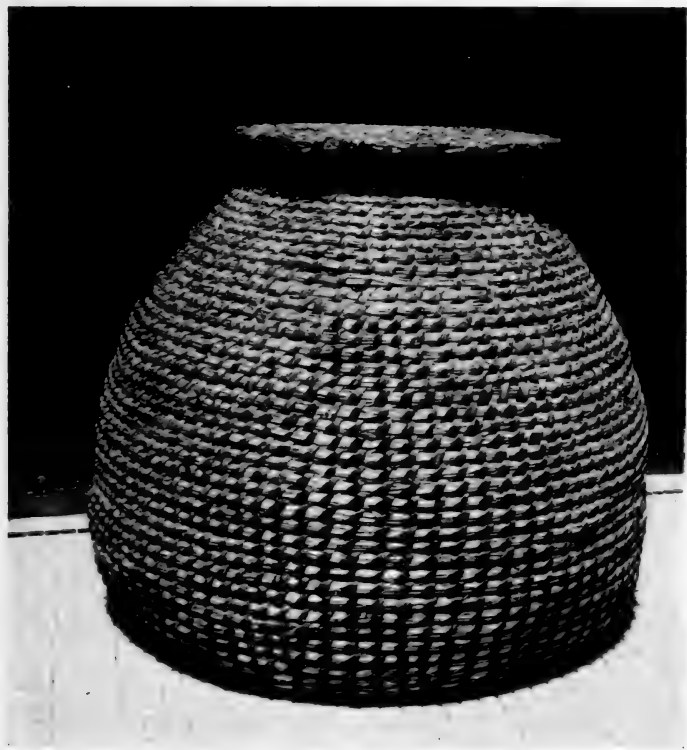
A variety of textile processes is employed by the Pima and Papago. Plaiting, which, as has been mentioned above, was employed by the prehistoric peoples and is still known to the pueblo peoples, is used in the manufacture of mats and a certain class of baskets. This plaiting is diagonal and for mats is done with the leaves of a reed. The rectangular covered baskets used to hold trinkets and medicine outfits are made chiefly by the Papago women who employ agave leaves. The greater number of the baskets, however, are sewed on a coiled foundation. In general appearance these

baskets are very similar to those made by the Apache and other neighboring tribes. The coiled foundation of the Pima and Papago baskets, however, consists of a bundle of small strands. The Pima formerly used the leaves of a rush which grew by the Gila River.



Pima Trays.

The Papago, and in recent years the Pima, use the leaves of a yucca. The sewing material, that which is visible on the basket, is of willow twigs from which the bark has been removed and the twig itself split and trimmed to a convenient size. The Papago now make many



Pima Storage Basket.

baskets for the tourist trade, using for such baskets the white, bleached leaves of a yucca. Their older baskets, however, were of willow, as are those of the Pima. This white material covers the body of the basket and forms the background for the designs, which are in black or dark brown. This dark material is derived from the fruit pods of the *martynia* or catsclaw.

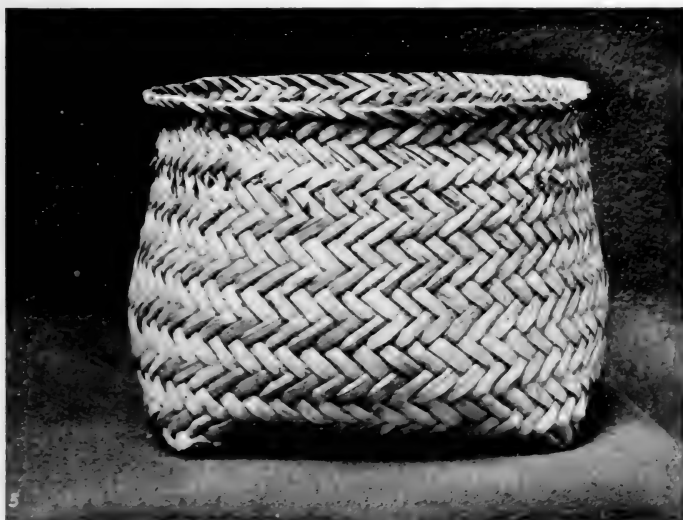
The designs consist chiefly of narrow stripes which zigzag and radiate from the bottom of the basket toward the rim. One noticeable feature of these coiled baskets is that the beginning is of plaited work while similar baskets in other parts of the Southwest begin by the same coiling method which is used in the main portion of the basket.

The Pima and Papago also make large storage baskets by a coiling method which does not involve the use of a second element to hold the coils together. They are bound together by an interlocking of the twigs which make up the succeeding coils.

One of the important uses to which baskets are put throughout western North America is a container for small objects which are to be transported on the backs of the women. The Apache have such baskets, which are usually made by twining, not by coiling. The Pima and Papago do not make or use burden-baskets, but have instead a net of twine supported on a frame of poles called *kiaha*. The fiber for the twine is secured from the leaves of the sotol (*Dasyllirion wheeleri*) and probably also from the narrow leaved yucca. The net is made by a method of interlocking of stitches, known as lace coiling. The supporting frame consists of sticks fashioned from the ribs of the giant cactus. A hoop of willow holds the mouth of the net open. Twine made of human hair is used to bind this hoop to the projecting ends of the frame. This carrying net is not only an

object well adapted to its use, but is a part of the woman's costume and therefore decorated as if it were a garment. The younger women are more particular about the ornamental characters of their *kiaha* than are the older women.

The headbands and belts of the Pima and Papago are of the same sort found southward in western Mexico among the Huichol and among the Hopi and the



Pima Plaited Basket.

Navajo to the north. They are woven on a special loom one end of which is attached to a tree or post and the other to the waist of the seated weaver. Wool is used in recent years for the weft of these belts, the warp being of cotton.

The early Spanish accounts mention the growing of cotton and the weaving of cloth with which the Pima clothed themselves. Cotton was raised to some extent

until the close of the last century. The spindle had the form of a simple shaft with a cross piece near one end to give momentum in whorling. The spinning was generally done by the women. In structure, the loom is similar to that still used by the Pueblo and Navajo Indians. It is interesting to note, however, that the loom was stretched horizontally near the ground instead of being suspended vertically as is the case elsewhere. As far as is known, the products of the looms were simple in character, suitable pieces for folding about the body and for use as blankets at night. The older men did the weaving.

SOCIAL ORGANIZATION.

It will be recalled that the pueblo-dwelling peoples of the Southwest, regardless of speech or locality, have clearly defined clan groups which are exogamous with descent in the female line. The Pima and the Papago have a quite different system. There are five divisions which run through all the villages of both tribes. Three of these divisions are grouped and known as the red ants or red people, and the remaining two as white ants. To the red group belong the Akol, Apap, and Apuki; to the white, Maam and Vaaf. This division of all the people into two groups gives us the moiety arrangement which is found among some of the Rio Grande pueblos. Such dual groups are usually prominent in religious ceremonies and in games where one moiety competes with the other. There is very scanty information concerning the duties or functions of the five divisions or of the two groups to which these divisions belong. Descent in the divisions is from father to son, but we are assured that there are no marriage restrictions associated with these divisions. It is said* that members of expeditions going for salt used to paint their

faces to indicate whether they were of the red or white moiety. That such divisions and groups formerly had some important relation to the social or religious life of the people must be assumed.

The families are made up of the parents, their children, and the wives and children of the sons. This it will be noticed is the reverse of the custom of the pueblo people, among whom the married daughter remains at home. The houses, each of which is occupied by one of these extended families, are grouped into villages of considerable size. Each village has a chief and a council that govern it. The official announcements are made from a housetop by a village crier. The chief and council also have a regular messenger who summons the citizens to appear when their attendance is desired. There is also a village officer who is in charge of the ceremonies and festivals of the village.

The villages of the Papago are grouped into four territorial districts to each of which a name is assigned. The Pima appear to have two geographical groups: the Pima of the Gila, and the Kohatk. The chiefs of the various Pima villages elect a chief of the entire tribe who holds office for life or until he is disabled. In an election the son of a former chief seems to be given special consideration. The duties of the head chief appear to be vague but his influence may be great without his powers being defined.

Leadership in war seems to have devolved upon any individual who commanded sufficient confidence to recruit a band to follow him, but the leadership was only for the one expedition. Wars were waged against the Apache and the Yuma. The Pima acted against the Apache as a tribe rather than by villages.

GAMES.

The Pima and Papago play games similar to those of the other Southwestern people. There are two dice games. The one played by men employs four stones and that of the women eight. The points of the men's game are tallied by moving a counter about a large rectangle of stones on the ground. The Apache use a much smaller and circular space.

The guessing game is played with four reeds in one of which a bean or ball of gum is hidden. Count is kept by means of kernels of corn, one hundred being used. This is the game usually called moccasin game. It is also played by the Navajo and Apache who employ piles of dirt or a row of small holes dug in the ground.

The women play a shinny game using a double connected ball which must not be touched with the hands. The purpose of the game is to carry and throw this ball over the opponent's goal line by the use of a willow stick.

There are several games of shooting with the bow and arrow intended probably to develop skill. They are for the most part confined to boys.

The races, which the pueblo dwellers make a part of their religious ceremonies, the Pima and Papago used to maintain with a less evident ceremonial connection. They had both the long distance race in which a ball is kicked for miles, and the relay race in which two large groups of racers representing opposing villages or large communities compete. The relay race may be won by speed or, if the speed is nearly equal, by the superior endurance of the combined contestants on one side.

RELIGION.

When the religious activities and the ceremonial objects of the Pima and Papago are considered they are found to be much less complicated and impressive than are those of the pueblo peoples. It seems that each village has a ceremonial house, which is of the same general structure as the dwellings. The ceremonial house is usually larger and its name is "large house." The house is under the care of a man called the Keeper of the Smoke, the reference being to tobacco smoking, not to a house fire. It is not clear from the accounts, but it is to be inferred, that this man is the priestly head of the village.

There are two classes of priests, fairly distinct from each other. The Siatcokam deal with sickness and the Makai with weather and the growth of crops and with warfare. The healing priests are made up of both men and women who are recruited by inheritance. The Makai are generally men who are believed to be possessed of supernatural power which enables them to perform magical acts. The production of rain is accomplished mainly by sympathetic magic the nature of which is concealed from the observers. The spectators will be apparently sprinkled by means of dry feathers, the reeds containing the water being concealed. The novices who wish to become priests of this sort undergo a training lasting from two to four years, during which time certain restrictions are observed.

At the time of the harvest festival of the Papago certain men wear masks and are the singers of the ceremony. They are called Uipinyim and are in a certain sense priests. Not only are the orders of priests fewer than among the Zuñi and Hopi, but there seems to be lacking the formal organization into priesthoods.

The pueblo peoples spend much time in performing a great number and variety of ceremonies. The Papago, as far as we are informed, have only three important ceremonies. In mid-spring a ceremony is held to procure good crops of giant cactus fruit during the coming season. In July, when the giant cactus fruit is ripe, a festival of wine drinking is held. If the crops are bountiful a harvest festival is sometimes celebrated in the Santa Rosa Valley, Arizona.

This ceremony, called Vigita, is the joint performance of the five villages of the valley. The exact date is fixed at the meeting of a council held at one of the villages. Preparations are immediately begun for the festival. On the eve of the tenth day before the main celebration a large bundle of feathered sticks which have been made for the occasion is placed in the center of the feast ground. The men gather around this bundle and listen to two formulated speeches which recite the origin and previous celebrations of the Vigita. Ten tally sticks are stuck in the ground, one of which is pulled up and carried away each evening, that the number of days may be accurately kept. The next night messengers are sent to the various villages to announce the date of the festival. Songs are composed and practised for the coming celebration. Each village has eight chief singers, each one of whom composes a song. These are taught to the other singers of that village and to those composing the village chorus who are not composers of songs. The masks of the singers are made of gourds which are painted in colors with designs representing lightning, clouds, and grains of corn. A second set of performers have large masks of cloth to which tin disks and turkey feathers are fastened. There are designs on the masks representing clouds. They carry crude bows and arrows and long poles with

which the fruit of the giant cactus is knocked down. The men themselves are said to represent the giant cactus. They are called clowns and appear as such, but since they are also the attendants of the singers and the head men it is proper to assume that, as is the case among the pueblo people, the duties of these apparent clowns are of considerable importance.

The main celebration occupies one day and takes place in an enclosure about 30 feet square made of wattling. In the center of the enclosure is a forked post on which is placed a basket of corn meal. To the east of the post is a flat cotton emblem of the sun and to the west a similar one of the moon. The enclosure is subdivided so that each village has its own plot wherein sacred objects are placed and where the singers for the particular village gather. Near each of these enclosures miniature fields are made of sand representing the arroyo which contributes the water, the irrigation ditches, and the fields themselves. These are cared for by the clowns.

The day of the festival all those in attendance are sprinkled with corn meal to keep away sickness. Each adult takes a feathered stick, puts corn meal on it, and brushes himself as a cleansing rite. The men of the respective villages, each for himself, have made of twigs a representation of some food products, clouds, game animals, and cotton. At noon these are carried to the village plot within the enclosure. As they move toward the spot bullroarers are swung, representing the sound of rain.

During the afternoon songs are sung. When darkness has fallen well-informed old men dressed as clowns deliver set speeches. After the speechmaking each village in order sings the songs which have been practised during the period of preparation. Two of the

singers from each village, wearing special masks, represent the corn. The singing occupies the night. Just before dawn all the singers remove their clothing and paint their bodies with spots to represent the multi-colored corn. Just as the sun rises two men, one bearing the symbol of the sun and the other the symbol of the moon, pass out through the opening of the enclosure, toward the east. Here they are met by two pairs of boys and girls representing the children who were once sacrificed. Old men scrape with notched sticks and sing while the children dance.

During the day the ceremonial objects which have been prepared as mentioned above are paraded. The singers continue their songs, and the clowns imitate shamans performing magic, and impersonate men drunk with giant cactus wine. Toward night when all the objects have been shown, each village sings four songs, different from those previously sung, and the festival is over.

There were ceremonial activities connected with hunting and warfare. We have the statement that the Pima, after killing an enemy, observed so many restrictions and for so long a time that their usefulness as scouts was impaired. The salt expeditions to the Gulf of California are conducted according to the pattern of war expeditions with offerings and ceremonial restrictions.

There are numerous shrines in the country of the Pima and Papago; some of them on mountain tops and others in caves. The offerings deposited at these shrines differed; at some of them twigs were placed and at others arrows.

As is the case with the pueblo dwellers, the religious ceremonies, the means employed with the hope of influencing events, consist of songs and of objects and activities of a magical character.

The beliefs of the Pima and Papago in regard to the supernatural fall rather naturally into those concerning the more striking manifestations of nature such as lightning, thunder, the sun and moon, wind, and rain on the one hand; and the conception of superhuman personalities such as Earth Magician, who was the Creator, and Elder Brother who appeared later on the scene but ultimately superseded Earth Magician and became the Culture Hero.

The Creator, or Earth Magician, alone, was floating on darkness until he rubbed cuticle from his body which, by the aid of white ants he created, became the earth. Later there was a flood from the effects of which the main personages were saved. Elder Brother killed a monster eagle which was preying upon humanity. Earth Magician on leaving this upper world shed certain impurities from his body which are responsible for sickness and other human ills.

The Pima and Papago during the ceremonies repeat portions of these myths and sing songs of the supernatural persons and animals both ancient and modern. The religious beliefs and practices of the Pima and Papago are closely similar to those of the pueblo-dwellers, but are less elaborate and spectacular.

CHAPTER IV.

THE CAMP DWELLERS.

THE camp dwellers may fairly be called nomadic. Their houses are inexpensive in regard to the material and labor involved in constructing them and for that reason are readily deserted and replaced by others in another situation. They depend comparatively little upon agriculture and therefore are not permanently bound to the locality of their fields and storerooms. The securing of their wild food, both animal and vegetable, requires considerable traveling about.

DISTRIBUTION.

These people belonged to two linguistic stocks: the Athapascan, consisting of the Navajo and several Apache tribes; and the Yuman, which includes the Walapai and Yavapai.

Athapascan. The Athapascan tribes in the eastern portion of the territory speak languages related to the Déné of the north, in the Mackenzie and Yukon valleys, and to the various scattered bands in western Oregon and northwestern California. The name Apache was widely applied by both the Spanish and the Americans who succeeded them and was used for several distinct tribes.

In the northeast are the Jicarilla Apache, who are again divided into two bands. One of these, the Llanero, lived on the headwaters of the Canadian River and in the mountains between that stream and the Rio Grande. The Ollero lived west of the Rio Grande, especially along the Chama River.

In the mountains between the Rio Pecos and the Rio Grande, south of White Mountain, were the Mescalero Apache. They consisted of many bands, each of which claimed a rather definite locality as its home. The territory occupied by them extended southward to the mouth of the Pecos but the bands in the lower part of this region were less closely allied to the Mescalero proper in political feeling and there was a slight difference in dialect. East of the Rio Grande in the Valley of the Mimbres was an Apache tribe now nearly extinct. They formerly were called the Mimbrenos but are better known from their great war leader, Victorio. When he was defeated a part of his band joined the Mescalero and others united with the tribes west of them. The Apache living on the headwaters of the Gila River are known as the Chiricahua. This tribe really consisted of four almost independent bands, each with a chief. These are the Indians who have made the name of Apache so widely known. They had robbed the Mexican settlements for many years before the American occupation. When later they were deprived of their native lands and placed on a reservation, they fled to Mexico where they lived by plundering on either side of the international boundary line. Their most noted chiefs were Mangas Coloradas, Whoa, Cochise, and Geronimo. The last named with the larger part of his band surrendered to General Miles in 1886. They were taken with their families as prisoners of war to Florida. After less than a year they were removed to Alabama and finally were given a place on a reservation at Fort Sill, Oklahoma.

The name San Carlos has been applied to the Apache bands gathered on a reservation of that name. They formerly lived on the San Carlos River, on the Gila River near the mouth of San Carlos, on Arivaipa

Creek which flows into the San Pedro, a southern tributary of the Gila, and about certain springs north and west of the town of Globe, Arizona.

On White River and others of the upper tributaries of the Salt River, were a number of bands of Apache quite similar in all respects to those last mentioned. These have often been called the Coyotero because they were looked upon as wild, but are now generally spoken of as the White Mountain Apache.

The Salt River receives a considerable tributary from the north called Tonto Creek. Near the head of this stream there is a large valley known as Tonto Basin. A tribe so well isolated from other Apache that a dialectic difference in language was developed occupied this valley. They were closely associated with the Yavapai who are Yuman in their speech. These two peoples were placed on the San Carlos Reservation in 1875 where they remained until 1905.

The Navajo, called by the Spanish "Apaches de Navajo," occupy nearly all the region between the San Juan and the Little Colorado Rivers and roam far beyond that territory in all directions. In language they are not very different from the Western Apache, but in culture they are fairly distinct, being mainly a pastoral people. Just prior to the American occupation, they were almost constantly raiding the Mexican settlements of New Mexico. They killed their first Indian agent and resisted American control. A large number of the tribe were taken prisoners and removed to Fort Sumner on the Pecos River where they were confined for some years.

Yuman. The western portion of Arizona and the lower Colorado River Valley are occupied by tribes speaking Yuman languages. The Maricopa, a Yuman-speaking people, are mentioned above as living with

the Pima. They are believed to have left the lower Colorado not many generations ago. North of the Maricopa, along the Rio Verde and eastward toward the Tonto Basin, are the Yavapai, often called the Mohave-Apache. They have acquired the latter name because of their close association with the Apache, to whom their relation is analogous to that existing between the Maricopa and the Pima. In Cataract Canyon, a branch of the Grand Canyon, live the Havasupai during the summer. They are in friendly relations with the Hopi and in trading relations with the Navajo. To the west of the Havasupai on the plateau south of the Colorado River and north of Bill Williams Creek are the Walapai.

Between the Rio Verde and the Colorado, west of the country of the Yavapai, formerly lived a tribe popularly called Yuma Apache, for whom the name Tulkepaia is also known. They were placed on the San Carlos Reservation in 1875, and seem to have become merged with the Yavapai with whom they had a common language.

SHELTERS.

These nomadic tribes do not show a great degree of uniformity either in their material culture or in their religion. We shall find their houses, their methods of securing food, and their social habits changing as we pass from tribe to tribe.

Both of the eastern bands of the Apache, the Jicarilla and the Mescalero, live in skin-covered tipis which differ in no important respect from those used by the Plains Indians. The Mescalero sometimes make brush shelters as well, and perhaps always made a practice of using them when they were in the mountains. When

on the treeless plains nothing was so desirable as an easily portable dwelling of skins or canvas.

All of the Apache west of the Rio Grande made houses which had frames of poles, covered with a thatch of weeds or grass. The prevailing type among the San Carlos Apache is dome-shaped. When the house is small, the frame is made by setting poles a few inches



San Carlos Apache Women Building a House.

in the ground in a circle, bending their tops over, and lashing them together. These poles are held in the proper curves by horizontal ones lashed to them. When a larger house is needed, poles are first placed forming a series of arches which overlap each other and together complete a circle except for the doorway. These arches support the main ribs running from the ground to the apex. The thatch, which is usually

bear grass, is applied in regular, overlapping courses and is bound in place with strips of yucca leaves. The White Mountain Apache houses frequently have two long sloping sides meeting in a line above, like an ordinary gable roof. In recent years, corn stalks and the limbs of trees are frequently used for thatching with the additional protection of a strip of canvas.



White Mountain Apache House.

The Tonto Apache and the Yuma peoples build houses with a somewhat conical shape. The houses of the Havasupai have four important posts coming to a peak which furnish the foundation. Other smaller poles are leaned between these on which a thatch is applied. Earth is piled around the bottom and in winter nearly to the top in order to shed the rain. The doorway in winter faces the sunrise at that season, a little south of west. The houses of the Walapai are said to be less substantial than those of the Havasupai.

The Navajo live in winter in earth-covered lodges. The house has for its chief support three large logs with forked tops. These are locked together by placing the fork of one in the fork of a second, and thrusting the fork of the third between them. Other logs and small poles are laid on these until a conical house is enclosed. Brush is placed in the larger cracks and



Navajo House.

earth is piled on to a depth of several inches. Such a house only leaks after a long, hard rain. A doorway is made on the east side and between the doorway and the apex a large hole is left to admit light and air and through which the smoke may escape. Six-sided houses are also built of logs placed horizontally. By drawing them in gradually after the walls have been carried to a proper height, the roof is formed. A smoke hole is left at the apex. During the summer the Navajo generally camp with only a shelter of brush or a stone wall to protect them from the prevailing winds.

FOOD SUPPLY.

The nomadic tribes had a large territory at their disposal. There were fertile and fairly well-watered river valleys where corn and beans could be raised, and vast tracts of upland covered, if sparsely, with a varied vegetation. Judging from the number of cattle and sheep which that region now supports, before their introduction there must have been sufficient food for many deer, antelope, and elk. A few days' travel east from the Rio Grande were the buffalo plains with a supply of meat limited only by the means of transporting it.

Corn was planted by all the tribes; but the Eastern Apache, the Jicarilla and Mescalero, depended but little upon agriculture. That the Navajo formerly had large fields was stated by Benavides, who gave that fact as the explanation of their name. The methods employed seem not to have differed particularly from those of the village Indians. The corn was planted in irregularly spaced bunches, rather than in rows. The Navajo cornfields are in the moist valleys. The White Mountain Apache plant their fields in river beds wherever the streams have left a fertile flat. Sometimes the water is turned on these by diverting it into simple ditches with a log placed in the edge of the stream.

The Havasupai, being located in the Cataract Canyon, have exceptional opportunities for agriculture. The canyon walls broaden out, making a valley nearly two and a half miles long. Over this valley the water of the creek is conducted by means of ditches in the sand and slight dams across the stream. The light soil and sudden rises in the stream level make it necessary frequently to renew both ditches and dams. To the fertile soil and a plentiful water supply is added summer heat, since the valley is a half mile lower than the

surrounding plateau. Peaches and figs are now raised, besides the native crops, maize, beans, and squash. When the crops have been harvested, they are dried and stored in caves and small storage rooms.

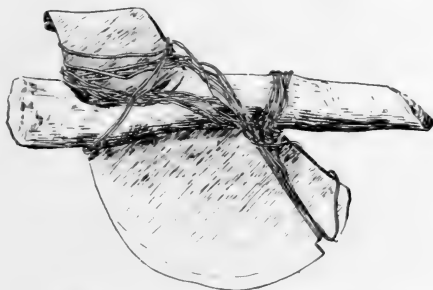
The country of the Walapai is unsuited to agriculture. There are only scattered spots with sufficient moisture to permit the raising of crops.



Jicarilla Woman Gathering Mescal.

The nomadic people make extensive use of the wild vegetable products. The piñon produces large crops of nuts which the woodrats gather. It is only necessary to rob their nests to secure an abundant supply. The mesquite grows in most localities and furnishes edible pods when they are green and later bean-like seeds which are pounded into flour. The amole, *Yucca*

baccata, has a banana-shaped fruit which is cooked in the ashes, and may then be dried for later use. The agave, a century plant, furnishes a large bulk of nutritious food. The plants are watched until signs of the flowering stalk appear when they are seven or eight years old. The entire plant is severed near the base by means of a chisel-shaped stick which is hammered with a stone. The plant is then turned top down and trimmed with a broad knife of native manufacture. A leaf or two is left for a handle by which the stumps are carried to a large deep pit used year after year.



Mescal Knife. San Carlos Apache.

This pit is thoroughly heated and filled with stumps. A covering of earth is thrown over them and a fire maintained on top for a day or more. The cooked material is dried in the sun and packed in bales for transportation to the camp. This food, while coarse, is not unpalatable.

There are many species of cacti, most of which have edible fruit. The giant cactus, which grows on the lower elevations, because of its great size yields abundantly. The fruit is pressed into large balls which keep indefinitely. These contain many black seeds which are separated by soaking and ground for flour. There

are many berries, seeds of grasses and sunflowers, nuts, and bulbs, which add considerably to the required food supply.

The Eastern Apache made regular trips to the buffalo plains, at the time of the year when the buffalo were driven south by the cold. They killed a large number, dried the meat, and packed it in bags, or parfleches, made of the hides of the animals killed. These were tied on the backs of horses for transportation.

Men went out singly to hunt deer and antelope wearing a headdress with the horns of the animals that they might approach them more readily. There were communal hunts for elk particularly. The leader of the hunt placed the men at the points that commanded the passageways and trails and the animals were driven toward them. Corrals were also used into which the antelope were driven.

The Athapascan tribes never eat fish or waterfowl. The taboo is explained by the Indians as due to a fear of water which is connected with the thunder.

The Havasupai move to the plateau above their canyon after their harvest and spend the fall and winter in gathering wild foods and in hunting deer, mountain-sheep, and formerly antelope. They are thus furnished with a plentiful supply of flesh to be eaten with their corn. The surplus skins are dressed and traded to other tribes.

For some years before and after the American occupation of the region, the Western Apache and the Navajo lived to a large extent on the cattle, sheep, horse, mules, and burros they were able to drive off from the settlements.

Both tribes seem to have undertaken the breeding of horses a long time ago. The Apache have attempted cattle raising only recently. Their burial customs

formerly required the destruction of all personal property at the death of the owner. This required that his herds be slaughtered. Recently the Apache herds have increased and go far toward supplying the necessary flesh diet. The Navajo, apparently without foreign instruction, began the rearing of sheep a century or more ago. Sheep raising has become an important industry and has worked great changes in their culture. It has largely superseded hunting and, to a considerable extent, agriculture.

CLOTHING.

The Jicarilla Apache wore buckskin clothing similar to that of the Plains. The Mescalero and the Western Apache women had dresses in two parts. The upper garment had an opening for the head and two large square portions which fell in front and behind to the hips. A skirt reached from the waist to the knees and was generously provided with fringes of buckskin. Less is known of the men's clothing. It seems to have been scanty, except on festive occasions and in winter. A shirt and leggings were probably worn, with a robe of skins for winter.

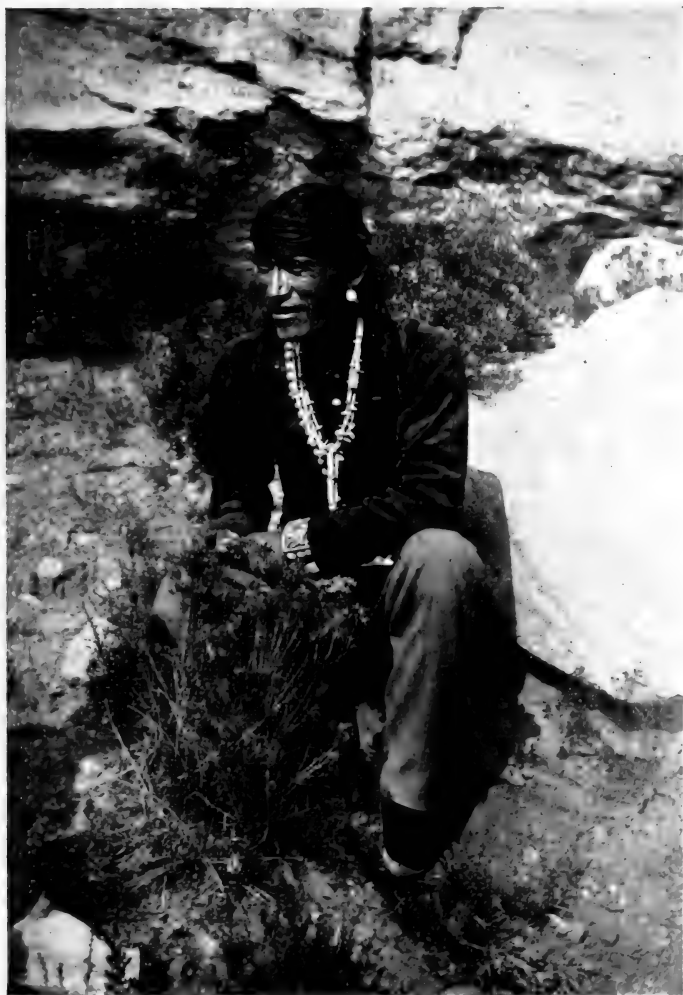
The Navajo men sometimes wore shirts and trousers with full length legs of buckskin. These were variously colored by dyeing, usually green or red. When cloth became more easily procurable, white cotton trousers with the lower part of the legs slit on the outer side were adopted. The upper garment was preferably of velveteen and answered the purpose of both shirt and blouse. A handkerchief or colored strip of cloth is worn about the head to confine the hair. The moccasins, which are colored brown, come up around the ankle where they are fastened by a silver button. The robe,



Mescalero Girl in Native Costume.

until recently, was the woolen blanket manufactured by the Navajo women, of the type now generally called a "chief."

The women wore a dress consisting of two rectangular pieces of woolen goods sewed up the sides and part away across one end, openings being left for the neck and arms. The decorations of these dresses were



Navajo Man.
(Photo by Howard McCormick.)

of a peculiar sort, restricted to the two ends and symmetrically arranged. Leggings of black wool were worn and buckskin moccasins over these.

Both men and women wear much silver jewelry of native manufacture. Necklaces and belts are the most elaborate, but the bracelets and the finger rings set with turquoise are attractively made.

INDUSTRIAL ARTS.

Pottery. All the nomadic peoples appear originally to have made crude pottery. The Jicarilla Apache and the Navajo still make what is required for household purposes. The Jicarilla in former days were rather noted for the excellent cooking pots which they made. Their ware was seldom painted, the decoration consisting of ridges or series of points modeled in low relief usually near the top. The vessels are molded in a similar manner to that employed by the pueblo peoples, but they are fired with pine bark which gives them a lusterless black surface. As the pots cool they are coated with piñon gum which is said to prevent their breaking.

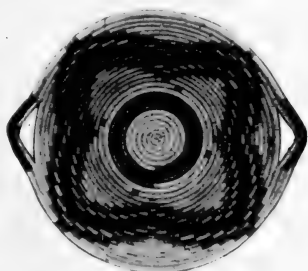
The Navajo make vessels similar in appearance. They are usually cylindrical in shape and with buckskin stretched over them are used for drums in ceremonies.

Basketry. It is in basketry that the mechanical and artistic skill of the nomadic peoples is best displayed. The baskets of both the Jicarilla and the Mescalero are quite different from those made by the Western Apache, the Yavapai, and the Pima. The Jicarilla baskets are of the coiled or sewed sort. The foundation is of three, or sometimes five, twigs of sumach or willow. The sewing material is made from similar twigs by splitting them into three parts and separating the sap wood from the heart. The sap portion, which is that used, is

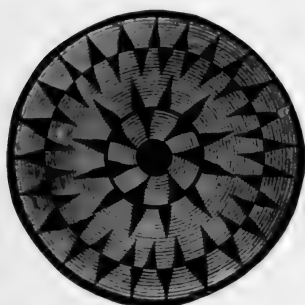
trimmed to the proper size and that required for designs is dyed. The old dyes were made from the root bark of the mountain mahogany, which gives a red, and the root of the barberry, which gives yellow. At the present time aniline dyes are used and the colors are gaudy and varied.

The patterns are geometrical: triangles, rectangles, and bands. The names of these designs indicate that they represent certain natural objects such as mountains, houses, plots of ground, trails, and gates.

It is seldom, however, that they are combined in such a way as to make a connected composition. The Jicarilla at the present time make almost no use of baskets except for water jars. These are made of close coiling in the shape of a jug. The inside is



Jicarilla Tray.

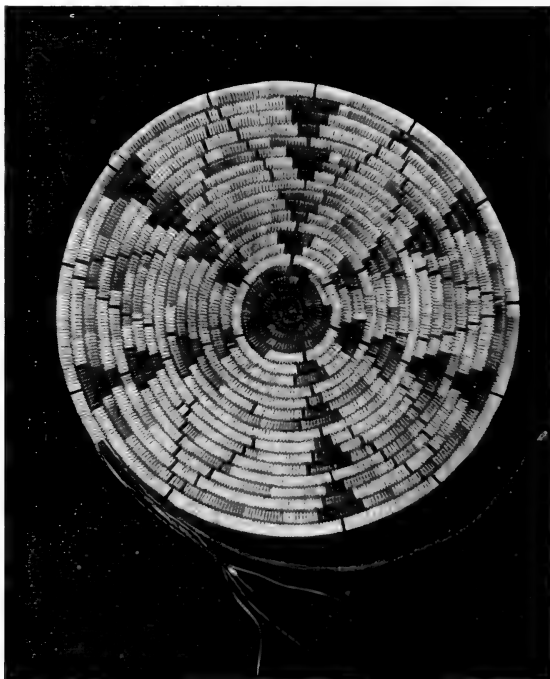


San Carlos Apache Tray.

coated with piñon pitch which has had its consistency reduced by boiling. This renders the vessel water-tight and also provides an easily cleaned surface. The outside is kept white by frequent applications of white earth. Two loops of leather or hair are made on one side through which the carrying strap passes.

The Mescalero also make coiled baskets, but since they use two rods placed one above the other in each coil of the foundation, the baskets have wide thin coils. Above the rods are placed two or more strips of

leaves to serve as a welt. The material used for sewing is chiefly obtained by splitting the leaves of the narrow-leaved yucca. These are used green, partly bleached to a yellow, or entirely bleached to white. A red material is obtained from the root of the yucca. These decorated



Mescalero Unfinished Basket.

baskets are made principally for sale, although they are used to some extent for storage. The water jars are similar in shape to those made by the Jicarilla, but they are frequently pitched on the outside as well as inside. Burden or carrying baskets are still in common

use. They are made by varied processes of twining which produce decorative effects. The material most desired is mulberry, the twigs of which are exceedingly durable. In most cases the women do not assign such names to the designs as would lead one to think the patterns are intended to be symbolic. One old woman, however, pointed out on a very crude basket the milky



Jicarilla and San Carlos Apache Baskets.

way, morning star, and a rainbow. These particular things are considered very sacred; and in spite of the denials of many of the women it is probable that Mesca-lero baskets do often have symbols on them which are expected to benefit the users of the basket.

The Arizona Apache and Yavapai make baskets in black and white almost exclusively. The baskets are made on a three-rod, coiled foundation, either of aromatic sumach or willow. The warp or sewing material

is of sumach, willow, or cottonwood, and is prepared as has been described above. No dyes are employed; but for black, the outer portion of the dried pods of the *martynia*, sometimes called devil's claw, is used. The patterns are continuous, radiating from the center in zigzags or in bands encircling the basket. The designs are often geometrical and apparently are not symbolic. There are many baskets with zigzag lines which usually have names referring to the lightning. It is probable that considerable feeling and importance attach to such designs. The Yavapai perhaps produce the more beautiful baskets, frequently depicting men and animals conventionalized to meet the requirements of basket work. Carrying baskets of the Western Apache are twined and are made of the same materials employed by the Mescalero. In twining, two rods of the foundation are enclosed each time between the twists of the twining strands. Strips and fringes of buckskin are used on these baskets for further ornamentation. They generally make their water jars by twining. They give them a coat of red ochre and finely pounded juniper leaves before the piñon pitch is applied. This pitch is first reduced in consistency by boiling, which requires great care to prevent the distilling vapor from taking fire. The pitch is applied to both the interior and the outer surface of the vessels.

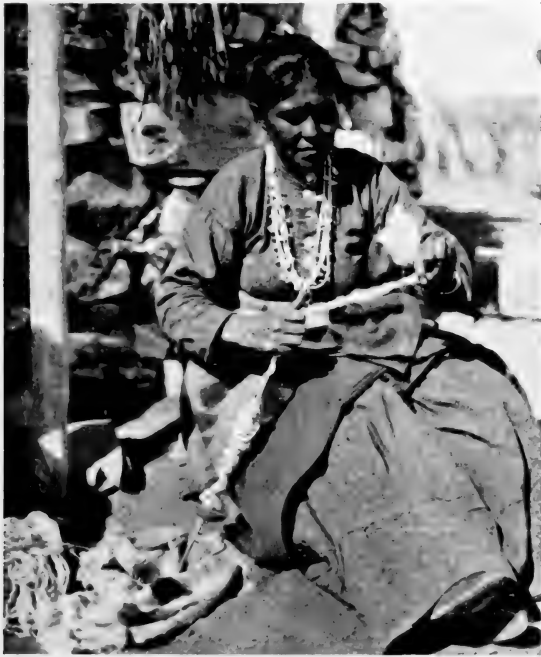
The baskets of the Havasupai and Walapai are similar, but are less skillfully made and not so finely ornamented.

Weaving. It is not known that any of the camp-dwelling peoples raised cotton or manufactured cloth by weaving before the coming of the Spanish.

That sheep were introduced into the Southwest in the seventeenth century we know, for certain of the Rio Grande villages are credited with flocks of sheep at

the time of the rebellion in 1680. The Navajo were the only people to undertake the raising of sheep on a considerable scale and turn to a pastoral life.

When blankets are to be made from the wool, it is sorted, spread out on a sloping stone, and then washed by pouring hot water containing an extract of the yucca



Navajo Woman Spinning.

root over it. The carding is done with a pair of ordinary European hand cards and there is no evidence of a more primitive means ever having been employed. The spindle, however, is the same as that found in cliff



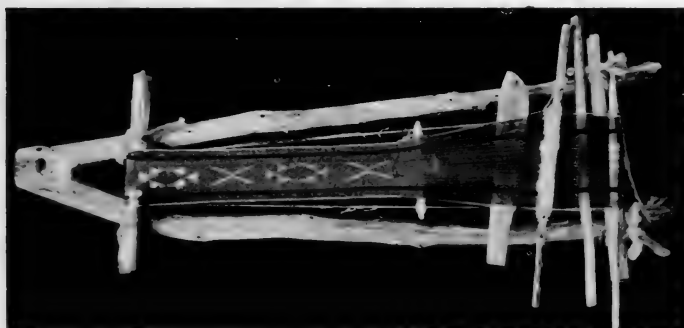
Navajo Woman Beating Down the Woof with a Batten Stick.

ruins. It consists of a small stick at the base of which is a wooden disk to give momentum and facilitate the winding of the yarn.

The loom is a simple frame in which the warp is placed vertically. The weaving is done beginning at the bottom, the blanket being lowered as the work progresses. No shuttle is used, the yarn being inserted with the fingers or by the aid of a small stick. The

woof is forced down by pressure with a fork or by the blow of a batten stick. The weaving is peculiar in that the woof strands of a particular color are not carried entirely across the blanket, but only as far as that color is required for the design. They are then dropped and another color is taken up.

In plain weaving the warp is divided into two divisions or sheds by attaching alternate threads by means of loops of yarn to two small sticks. The sheds



Navajo Belt Loom.

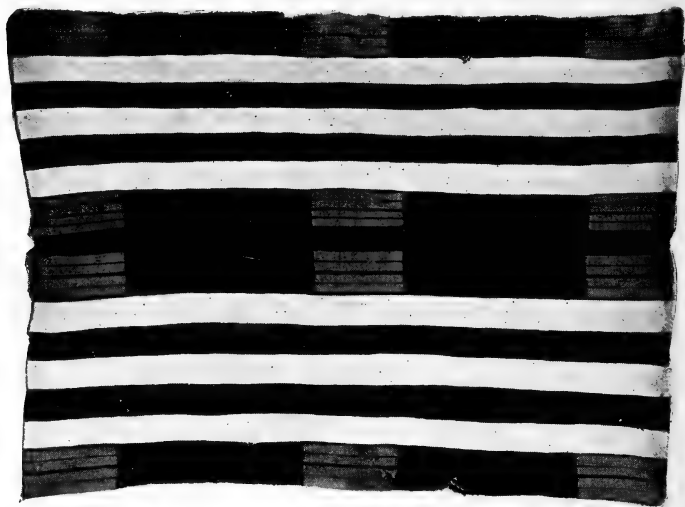
or sets of warp strands are separated by pushing down a small rod and twisting the batten stick and crossed by pulling up on the stick to which the loops are attached.

Diagonal weaving is done by making three instead of two sheds. By this means every third strand of the warp can be lifted and a raised pattern is made with a slope to one side or the other. By reversing the direction of this slope, diamonds are produced. This style of weaving is used particularly in saddle blankets.

Sashes are woven on a similar loom which, since it is small, is stretched on a forked stick or by fastening one end to a tree and the other to the waist of the weaver.

The patterns are brought out by causing the warp instead of the woof to appear in the desired places.

The colors employed are the natural white and brown of the well-washed wool, a gray which results from the mingling of these, and various native and commercial dyes. Black they produced by combining a concoction of sumach (*Rhus aromatica*), roasted ochre, and piñon gum. Dull red was obtained by placing the



Navajo Chief Blanket.

yarn in a liquid made by boiling the bark of alder and mountain mahogany in water. Lemon yellow was secured by the use of the yellow flowers of the shrubby *Bigelovia graveolens* and a native alum. Old gold resulted from rubbing into the wool a paste made of sorrel roots and crude alum ground together. In rather early days indigo blue was obtained from the Mexicans and displaced an earlier native blue. A bright scarlet and a



Navajo Blanket. Sage Collection.

rose color were obtained in the early history of blanket-making by raveling woolen cloth obtained from Europeans. Blankets containing such material are called "bayeta" from the Spanish name of flannel used in the soldiers' uniforms. There were a few years during which the Navajo frequently bought yarn ready spun and dyed from the traders. These blankets are usually called Germantowns.

The earliest examples of Navajo weaving often have horizontal stripes, closely resembling the blankets made by the Hopi. Later many geometrical figures appear, standing alone, or combined with horizontal and vertical stripes or with each other. The general arrangement is usually symmetrical, but both the completed pattern and the individual designs lack the exactness of machine work.

The more common designs are squares, parallelograms, diamonds, and triangles. Diamonds are often formed by intersecting diagonal lines which run across the blanket, half diamonds resulting at the sides. The outlines of the figures in many cases are broken with right angles, that is, made to consist of a series of steps. These designs have Navajo names descriptive of them, such as "sling" for the elongated diamond, "three points" for the triangle. The ordinary diamond is called "star large," by which the morning star is meant. This and the zigzag line representing lightning and triangular masses called clouds have more or less religious connotation and may be symbolic in their intention.

It is proper to suppose that the Navajo, who formerly did not weave, learned the art from their Pueblo neighbors who are known to have practised it in prehistoric times. They seem to have taken over the loom and the general methods of preparing the yarn and weaving it.

The practice of making designs in colors which do not cross the entire width of the blanket seems to have originated with the Navajo. The Hopi robes have stripes running entirely across them; but the skirts of the women and the shirts of the men have the designs added by embroidery after the fabric is woven. The method employed by the Navajo of making the design while the weaving is in progress is similar to that with which they were familiar in basket making. It is then possible that the designs now found on Navajo blankets were in large measure adapted from basketry designs. Unfortunately, the Navajo at the present time make very few baskets, so that a comparison between the designs on blankets and baskets is hardly feasible.

Silverwork. The art of metal working is certainly an introduced one in the Southwest. It is practised by many tribes in North America, usually with the softer metals like German silver. The Navajo, however, use Mexican silver coins and have become very expert. Most of the work is done by pounding the material on a small anvil with an ordinary steel hammer. A small forge with bellows is used to soften the metal and to melt it when it is necessary to make casts in molds. The hammered pieces are decorated by stamping designs on them with steel dies which are prepared by the Navajo themselves.

The products are finger rings set with turquoise matrix, bracelets, large oval disks for leather belts, and neck ornaments. These neck ornaments are usually a string of hollow spherical beads and a pendant consisting of two joined crescents. Between the beads are often placed conventionalized squash blossoms.

Beadwork. The Eastern Apache do much work with glass beads. These are either sewed to articles of leather and buckskin, such as purses, tobacco bags, awl cases,

belts, and moccasins; or they are woven in a belt loom having a warp and woof of cotton thread. The beads are strung on the woof by means of two needles which pass a double thread through the beads and on either side of the warp strands. The designs are mostly geometrical, similar to those found in basket work, but realistic ones are found in which circular saws, bows and arrows, and butterflies are represented.

The Eastern Apache paint designs on rawhide bags as do the Plains Indians. They have the envelope type of receptacle known as the *parfleche*. The Western Apache use instead saddlebags decorated with cut designs and streamers. This art no doubt is of Spanish origin, taken over with the horse and saddle.

SOCIAL ORGANIZATION.

The Eastern Apache, as far as can be discovered, have no clans, or other divisions regulating marriage. The Western Apache and the Navajo have clans which are exogamous, regulating social duties and relations and especially marriage. The explanation of the names, which are geographical ones, is that in mythical times a band camped for a time at a place where a cottonwood tree stood by a stream or where some accident befell them and from this tree or circumstance, a name was given the clan. Were one to trust to these myths he would conclude that the clans represent former geographical or political groups. This does not appear to be true for the Navajo. The clans of the White Mountain Apache do seem to be somewhat localized. Certain clans have numerous members residing in the western portion of the Apache territory and but few in the eastern region. The region which in the myth gives the name to the clan is in some instances

definitely localized by the Apache and the clan is still associated with that region. Carrizo Creek is named in Apache Lokadigai, with reference to the reeds which grow in its bed and which are also responsible for the Spanish name Carrizo. One of the clans is named from this creek Lokadigaihn and its members are more numerous in this valley than in other parts of the Apache region. Certain political bands are also associated in the Apache mind with definite clans. Since of each family the mother and children belong to one clan and the father to another, there can never be localization or division into political groups in a strict sense. In the valley of Carrizo Creek the members of various other clans are more numerous than are those of the one clan which is associated with the creek by name.

The clans of the Navajo number over fifty and of the Western Apache over thirty. Among both tribes the clans are more or less grouped and the entire group usually is exogamous but does not bear a distinctive name.

SOCIAL CUSTOMS.

The young men among the Navajo and Apache in former days secured their brides by displaying their ability as hunters. The man came to the lodge of his chosen maiden with a deer which he placed outside. If her family were willing to have him as a son-in-law, the deer was taken and eaten. The young man lived with his father-in-law for some time and hunted for the support of the family. A strict mother-in-law taboo exists among the nomadic Athapascans of the Southwest. The young man must never meet his mother-in-law or any of her sisters or her mother. They are never permitted to be in the same room together or

directly to address one another. When it is absolutely necessary for communication to take place between them, one shouts from a distance to the other using the third person. "Tell him to come and eat, his dinner is ready," his mother-in-law may call, and leave her lodge while the young man comes to eat. The penalty for the infringement of this taboo is believed to be blindness inflicted by some supernatural power. The Indians assign no other reason for the existence of this restriction and probably no other is felt than that such meetings and intercourse are improper.

There are other minor restrictions between relations-in-law, especially in regard to the calling of their personal names. An intimate relation implying mutual aid exists between a man and his brother's son. Cousins whose fathers are brothers treat each other with great familiarity, often indulging in insulting remarks which must not be resented. A widow about to remarry is at the disposal of the clan of her deceased husband and she usually marries one of his brothers or near relatives.

The adult dead are buried at a distance from the camping places and the graves are covered with stones and brush. The personal property is placed by the grave and a horse or two is generally killed near by. The Jicarilla used to cut off the heads of the horses so sacrificed, as is the custom among some of the Plains tribes. Dead infants are usually suspended in trees wrapped in their cradles. The reason for this different treatment of children is not known but the custom has been noted in the preceding pages as a prehistoric one in this region. Great fear is shown of dead bodies and all objects associated with them. The Apache burn the houses and the Navajo desert them after a death has occurred. The Yuman peoples seem all to have practised the burning of the dead. The Havasupai

discontinued the cremation for burial about fifty years ago. The Walapai make annual offerings to the dead of a particular year by a community burning of food and clothing.

POLITICAL ORGANIZATION.

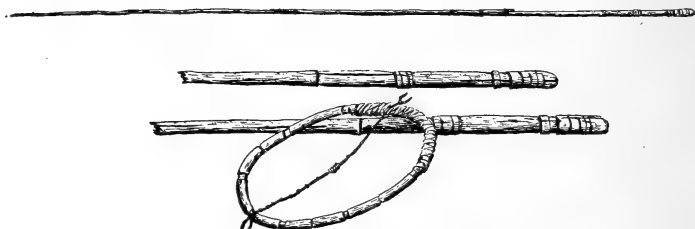
The government of the nomadic tribes is much less formal than that of the sedentary peoples. The Jicarilla now have a chief elected from each of the two bands. One of these is recognized by the Agency officials and by the Indians themselves as tribal chief. In earlier times the two divisions appear to have been politically independent, each having chiefs of coördinate rank. Both war and hunting parties were under the control of a head man who directed them. While it is probable that the same individual frequently acted in this capacity it is not certain that the office of war chief was definitely bestowed.

The other Apache and the Navajo are divided into many small bands each with its chief who holds office for life and who is frequently succeeded by his son if he proves himself efficient. The office seems to have been bestowed by common consent. One of the main duties of the chief is to address his people each morning about dawn, keeping them informed as to things that have happened and of events of community interest about to occur.

The Navajo and the Apache bands united in common action against other tribes and against the Mexicans and Americans under the leadership of such men as had proved themselves capable leaders. As examples may be mentioned Geronimo who led several bands of the Apache for a number of years, and Manuelito among the Navajo who led them in their fight against the Americans.

GAMES.

The Apache and Navajo have several games which are played partly for amusement but largely in the hope of gain. As elsewhere in North America, these games have a semi-religious character. There is a myth which explains their origin, and songs and prayers to bring about success in playing. The game to which most dignity is attached is the hoop and pole game. The implements employed are a hoop with incised bands and a string stretched along the diameter in



Hoop and Pole Game. Apache.

which many knots are tied, and two long poles, the larger ends of which have a number of incised rings. To play it two men stand side by side at one end of a level stretch of ground. One rolls the hoop down this stretch and both throw the poles after it. If the hoop falls on the butt of one of the poles a count is made according to the knots of the string or the incised rings which happen to be in contact with the rings cut into the pole. The incised rings are named for the lightning and the hoop represents a snake. Women are never allowed to witness the playing of this game.

A guessing game is played by a number of players divided into two parties. A man representing one of these parties hides a ball in one of several piles of sand

or in a moccasin. The other party must guess its location.

The women play a game with three split staves which are dropped vertically on a stone. There are several counts according to the position in which they fall. If the split side of all three sticks is up, the count is five, but if the rounded side of all three is up, the count is ten. The score of the game is kept by moving a stick for each player around a circle marked by forty small stones. There are openings at four points, called rivers. If the stick of a player falls into a river she must return it to the beginning place again. A similar game is played by the men.

RELIGION.

Ceremonies. The religious practices of the nomadic peoples have much in common with those of the Pueblos. They make sand or dry paintings, those of the Navajo being very numerous and very elaborate. Masked or otherwise distinguished individuals represent divine persons in the ceremonies. Pollen is strewed and is the regular accompaniment of prayers. The Navajo make use of prayer offerings and also have fetishes which are used both in hunting and in the care of their flocks and herds. The Apache make much use of sacred beads and feathers which are worn about the person, on the wrists, or as a bandolier across the breast.

A ceremony held for girls when they attain womanhood is considered of prime importance among the Apache tribes and has been maintained while other ceremonies have fallen into neglect. The essential features of this ceremony are numerous songs and prayers uttered by the priest hired for the occasion, dancing by the girl or girls for whom it is held, a foot-

race by the girl, and the painting of the girl and of the spectators, who expect good fortune as a result.

The Jicarilla ceremony is peculiar in that a boy is associated with a girl in the ceremony. He is called Naiyenezgani and the girl Esdzanadlehi. These names are those of the culture hero and his grandmother, but they are undoubtedly associated also with the sun and the moon.

The Apache of Arizona hold ceremonies of varying degrees of elaboration. Every girl on reaching maturity is secluded and subject to certain restrictions, especially in regard to touching her lips to water and scratching her person with her nails.

For most girls a morning ceremony is held. A priest or professional singer is employed who with his helpers forms a chorus. About dawn this chorus stands in a line facing the east and the girl takes her place in front of it. Many songs are sung of the creation of the world and the first adolescence ceremony. The girl dances; first standing, and then on her knees. Later, she lies prone while a matron kneads and pulls her into comely proportions. The assembled spectators sprinkle the girl with pollen and ask that she may have a fortunate life. The girl runs certain races after which her family serve a feast.

Frequently a second ceremony is held at night. Four poles properly marked with symbols are set up to form a pyramid which is conceived as a lodge. Within this structure at night a long series of songs are sung by a chorus seated by a small fire. The girl with one of her associates and two boys of similar age stand and dance with their faces toward the east. Especial songs are sung at dawn. During the morning, first the girl and then the spectators are painted with white earth.



The Apache Ceremony for an Adolescent Girl.
 Above: the Morning Ceremony.
 Below: the Dancing Gans. Ash Creek, Arizona.

Frequently a priest is hired who presents four men dressed to represent gods called Gans. A fifth man acts as a clown. These gods appear at twilight and return at intervals during the evening and early morning. They enter in a processional and then dance about a large fire. They go through certain conventional steps and movements and present a most impressive and weird spectacle with the play of the firelight on



Jicarilla Relay Race.

their blackened bodies and decorated headdresses. These gods return in the morning and assist in the painting ceremony described above.

These ceremonies on the whole have a festive as well as a religious character. The purposes may be considered to be in part the bringing to the notice of suitors and others that the girl is now marriageable and to insure for her a long and happy life.

The Jicarilla have an annual festival which resembles very closely that held at Taos. The entire tribe camps near a large lake in the southwestern corner of their

reservation. The two bands, the Llanero and the Ollero, pitch their tipis on opposite sides. On the day preceding the public festival, the young men of each band accompanied by the older men go some distance from the camp and hold a preliminary race by which those who are to run in the final race are chosen. Two booths are constructed, one at either end of the race course. From these the two bands issue in irregular bunches surrounding a drum. The dancers have cottonwood branches in their hands and are led by a man carrying a standard from which flies a cotton cloth and on the top of which are two ears of corn. The two bands of dancers approach each other and pass, each going to the goal of the other. During the night and the early morning, ceremonies are held in the booths, a sand painting is made, the racers are painted, and prayers are said for them by priests. About noon the relay race takes place, practically under the same conditions and in the same manner as has already been described for Taos.

The Jicarilla have a healing ceremony held at the request of someone who is ill. A large place is enclosed by a brush fence. At one end of this a tipi is fixed or a booth is made. Within this a sand painting is drawn representing many animals. A buffalo skin is stretched over a pit and beaten like a drum, the moccasins of the patient being used for drumsticks. The shoulder blade of a deer or antelope is rubbed over a notched stick producing considerable noise. Rattles are also used as an accompaniment to loud singing. This singing and noise are intended to scare away the evil influence which has resulted from the patient's having crossed the tracks of a bear or rattlesnake. Within the brush enclosure a dance is held at night. Men painted in two styles and decorated with fir

boughs come in and perform many seeming miracles such as making corn increase in a pot, and taking rabbits from a seemingly empty vessel. These two sets of dancers probably correspond to the Cuirana and the Koshare of the Rio Grande Pueblos. The Ute holds a ceremony similar to this each spring known as the bear dance.

The Navajo have developed many elaborate ceremonies each of which is under the control of a school of priests, the numbers of which are maintained by those who apply for initiation and training. These ceremonies for the most part are held at the request and expense of some individual who is ill or indisposed.

A special conical lodge of logs covered with earth is built in which the ceremony is carried on. All the ceremonies seem to be alike in certain particulars such as the use of a sweatbath, the making of many sand paintings, and the singing of a great number of songs. At some point in the ceremony, masked men enter in a procession representing the more important gods of the Navajo. Prayer offerings are made of sections of reeds filled with tobacco. They are painted with the colors and are deposited in the particular situations prescribed for the deity for which they are prepared.

On the last night a public performance is held which is largely attended. Besides the masked dancers representing the gods, clowns appear who play tricks on each other and often act in a very obscene manner.

The songs and prayers are beautiful in their imagery and have many references to natural elements to which sex is attributed. Varying positions and movements are indicated in an established order. The number four prevails in the prayers and songs themselves, and they are generally repeated four times with minor

variations. The following prayer recorded by Dr. Matthews belongs to the Night Chant.

Tsegihi.

House made of the dawn.

House made of evening light.

House made of the dark cloud.

House made of male rain.

House made of dark mist.

House made of female rain.

House made of pollen.

House made of grasshoppers.

Dark cloud is at the door.

The trail of it is dark cloud.

The zigzag lightning stands high up on it.

Male deity!

Your offering I make.

I have prepared a smoke for you.

Restore my feet for me.

Restore my legs for me.

Restore my body for me.

Restore my mind for me.

Restore my voice for me.

Happily may I walk.

Happily with abundant dark clouds, may I walk.

Happily with abundant showers, may I walk.

Happily with abundant plants, may I walk.

Happily may I walk.

Being as it used to be long ago, may I walk.

May it be happy (or beautiful) before me.

May it be beautiful behind me.

May it be beautiful below me.

May it be beautiful above me.

May it be beautiful all around me.

In beauty it is finished.

In beauty it is finished.

Beliefs. While the ceremonies of the Athapascan tribes of the Southwest present considerable specialization and variety, the deities revered and the myths

related about them are in the main identical. The sun is probably credited with the greatest amount of power and is most frequently referred to in song and addressed in prayer. Among the Jicarilla, at least, the earth is also an object of worship. The Mescalero songs give the moon a place second only to that of the sun. The winds are with them objects of worship as they are also with the Western Apache and the Navajo. The thunder is everywhere feared and looked upon as a mighty power seldom to be mentioned. Clouds and rain, however, have a place of much less importance than with the village people. There are sacred mountains and rivers but these are of necessity different for the different tribes.

One of the more personal gods, Esdzanadlehi, was the sole survivor of a flood or, according to some, the ravages of monsters. She is probably to be identified with the Hopi goddess of hard substances. Naiyenezgani, the culture hero, her grandson, destroyed the monsters and made the world safe for human habitation. By some he is said to have a brother who is, however, quite secondary in importance. The Navajo have a series of gods who intervene in human affairs from time to time. They are believed to dwell in the ruins of Canyon de Chelly and in remote places. They are represented in the dances by masked and painted men and receive offerings and are frequently invoked. There are also gods of the water courses and streams. The Jicarilla and the Western Apache know similar gods, in several cases even using the same personal names for them. The Apache more generally use for these gods a generic name, Gan, and individualize them by the use of a color adjective, such as Black Gan. They are analogous to the Kachinas of the pueblo peoples.

The dead are supposed to go to the lower world through the opening by means of which the people originally came forth.

The Indians of the Southwest have many myths and tales, which they relate particularly during the winter. Very many of these myths explain the origin of the world. While these vary in details, according to the tribe and the individual who tells them, they agree as to the general facts. The Athapascan-speaking people tell of a time before the world existed when Spider, Mirage, Whirlwind, and Black Obsidian lived suspended in space. Obsidian rubbed his side and from the removed cuticle produced the earth. They then lifted up the sky and supported it at each of the four corners with a core of obsidian inside a whirlwind. People and animals came to exist within the world in an unexplained manner. They were threatened with a flood and escaped by means of reeds or a ladder through an opening in the sky of the lower world, the crust of this. They were all destroyed by monsters except a girl Esdzanadlehi. The water pitying her lonely condition became the father of a daughter who in turn by the rays of the rising sun became the mother of Naiyenezgani. This boy visited the sun, his father, withstood severe tests as to his sonship, and secured weapons and the promise of aid. With these weapons he killed a giant, a monster elk or antelope, a great eagle, and many other evil things. When this work was completed and the world was repopled by the creation of men and women from ears of corn, Esdzanadlehi went to the western ocean, where she is now living in a floating palace of shell. According to the Navajo, Naiyenezgani lives with his brother near the mouth of the San Juan River.

Later, a man who was considered worthless because he gambled away all his property, went down a river in a hollow log, conducted by the gods. He landed at a favorable place and prepared a farm for which his pet turkey furnished the seed. He found his way to the home of a man who had all game animals domesticated. He married this man's daughter who received these animals as her marriage portion. Thus was food supplied for mankind.

According to the myths, the various ceremonies of the Navajo were taught to some Indian who by accident or at the direction of the gods went to a ruin or other dwelling place of the supernatural beings and learned there the songs, prayers, and rites.

A long myth explains the origin of the Navajo people and their clans. The nucleus was created by Esdzanadlehi in her western home. As they journeyed eastward they met various parties who joined them and who were given names according to the attendant circumstances of their meeting. Other myths explain the origin of fire, and of night and day. There are many animal tales, a large number of them being associated with coyote who is now represented as being exceedingly keen of wit and again as very stupid. These myths and stories told to considerable companies during the evenings of winter are sources both of amusement and of instruction.

CHAPTER V.

CONCLUSION.

The civilization existing in the Southwest which is described in the preceding pages has resulted in part from slow internal growth and in part from borrowings and suggestions received from neighboring cultures. The earliest archaeological evidence shows us a people, the Basket Makers, already possessing agriculture in the matter of maize and squash, but they do not appear to have had beans or cotton. However, until we know whether this prehistoric people and their culture occupied the whole of the Southwest or only the Colorado-San Juan region, we are not justified in assuming that they are the beginning point of our Southwestern studies. If they are proved to underlie the whole of the Southwest we are dealing with a Great Basin, California-like culture.

On the other hand, should they be found only in the north we must begin with the people whose culture is characterized by houses with low walls of upright slabs and a less permanent roof, a people who raised beans and cotton as well as maize, and who knew the art of pottery-making. These and other traits would mark them as having a culture rather distinct from all their neighbors except those of the south. But whether we start with a culture like that of the Great Basin, or one that is independent, we must believe certain very important elements such as agriculture, pottery, weaving on a proper loom, the wearing of sandals, and probably many phases of ceremonial and religious life came to them from the south since they are common possessions of the pre-Spanish peoples of Mexico, Central America, and western South America. The point at

issue is rather the time at which their influence was exerted and the type of culture on which this southern culture was grafted.

We now know that the architecture of the Southwest, the honey-comb-like community houses, often terraced, developed in the Southwest with little or no outside stimulus. The decoration of the pottery is also a native growth. It is possible to trace its development



Petroglyphs. San Juan Valley.
(Courtesy of Dr. Prudden.)

from a beginning of crude black designs on a white background to the highly ornamented and locally differentiated decorations of the beginning of the Spanish period. Much of the elaborate social, political, and ceremonial organizations of the present must have grown up with the concentration of the population into large community houses.

The pueblo-dwelling peoples of the Rio Grande region have been subjected to constant influence from the tribes of the Plains. They not only received many articles used for food and clothing by trade with these

Plains tribes, but they themselves periodically became nomads and hunted the buffalo for themselves. The pre-Spanish inhabitants of the San Juan region and the present-day village and camp-dwelling peoples have a basketry art which appears to be either a borrowing from, or early participation in, the culture of California and the Great Basin.

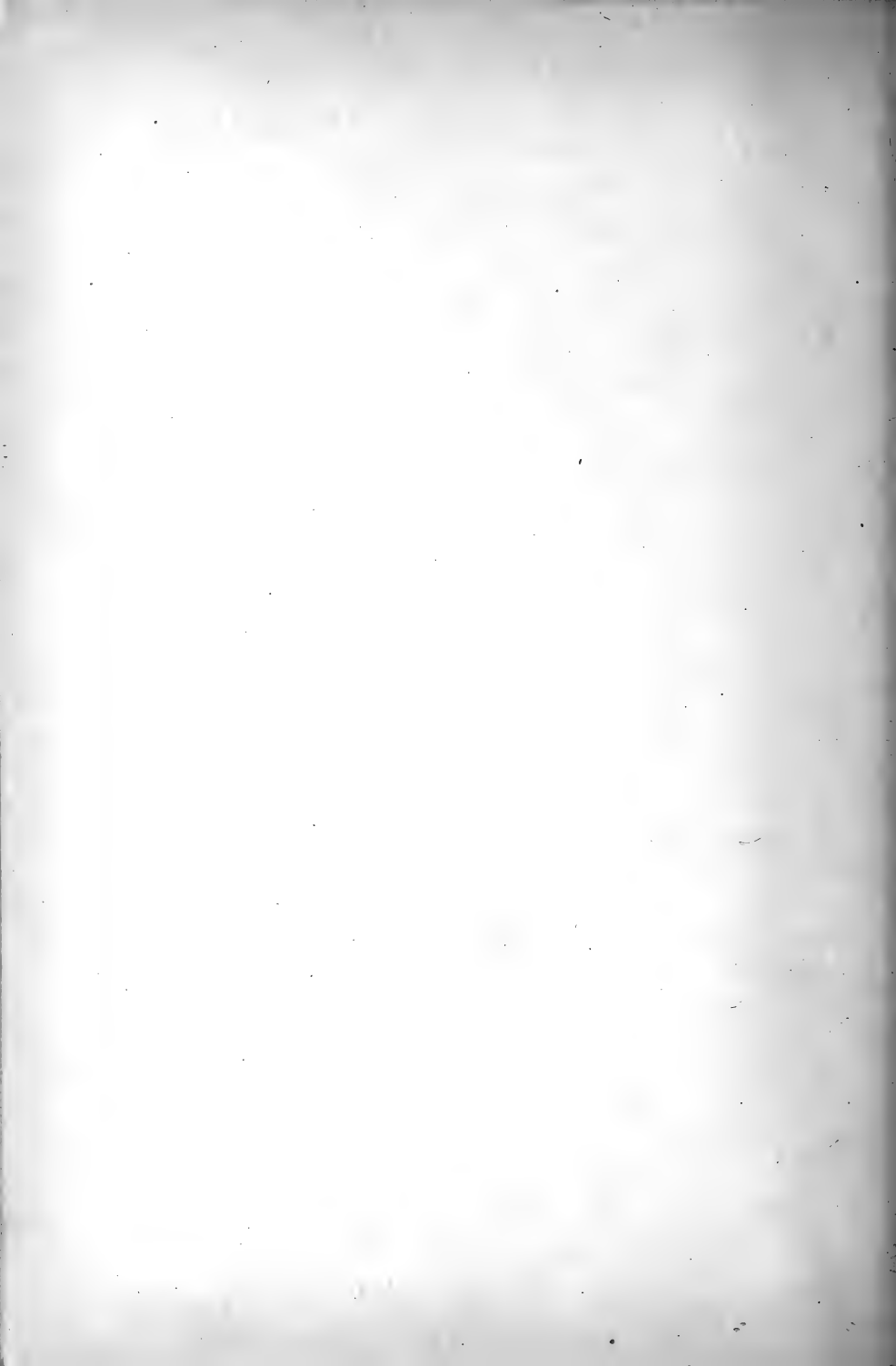
The Pima and the Papago may represent a southern variety of the culture which existed in the Southwest before the development of elaborate architecture and highly specialized and decorated pottery. It may be, however, that the Pima in particular built great houses and developed a wonderful irrigation system on the Salt River, and then, for some reason, reverted to the use of individual family houses. With less plausibility, the same conjectures may be made for the Athapascan-speaking people. It seems more probable in their case that they came into the Southwest from the north, but that their invasion was not very recent.

There still remain many unanswered questions concerning this most interesting region. Some of these will undoubtedly be answered when the studies of the archaeologist have covered the whole region and have pushed further back into the past. It is hoped that detailed statistical studies of the living people and of the abundant skeletal remains may tell at least part of the story of the movements and mingling of the tribes in the past.

BIBLIOGRAPHY.

- Bandelier, A. F. Ethnology and Archaeology. Papers of the Archaeological Institute of America, American Series, 1, 3, 4, and 5.
- Bourke, John G. The Snake-Dance of the Moquis of Arizona. New York, 1884.
- Cushing, Frank Hamilton. Zuñi. Second and Thirteenth Annual Reports, Bureau of American Ethnology.
- Dorsey, G. A., and Voth, H. R. Hopi. Publications of the Field Columbian Museum, Anthropological Series, Vol. 3.
- Fewkes, J. Walter. Archaeology and Hopi Ceremonies. Fifteenth, Seventeenth, and Twenty-second Annual Reports, Bureau of American Ethnology; Bulletins, Forty-one and Fifty-one, Bureau of American Ethnology; Journal of American Ethnology and Archaeology, Vols. 2 and 4.
- Hewett, Edgar L. Jemez Plateau. Bulletin 32, Bureau of American Ethnology.
- Hodge, F. W. Ethnology and Archaeology. American Anthropologist, Vol. 6, No. 3, and Vol. 9, No. 8.
- Holmes, William H. Archaeology. Tenth Annual Report of the United States Geological and Geographical Survey.
- Jackson, William H. Archaeology. Tenth Annual Report of the United States Geological and Geographical Survey.
- Kidder, A. V. Archaeology. Memoirs of the American Anthropological Association, Vol. 2.
- Kidder, A. V., and Guernsey, S. J. Archaeology. Bulletin 65, Bureau of American Ethnology.
- Kissell, Mary Lois. Basketry. Anthropological Papers of the American Museum of Natural History, Vol. 17.
- Kroeber, A. L. Social Organization. Anthropological Papers, American Museum of Natural History, Vol. 18.
- Kroeber, A. L. Mohave. American Anthropologist, N. S., Vol. 4, No. 2.
- Lloyd, J. Wm. Mythology of the Pima. Awawtam, Indian Nights. Westfield, N. J. 1911.
- Mason, J. Alden. Ceremonies. American Anthropologist, Vol. 22, No. 1.

- Matthews, Dr. Washington. Navajo. Memoirs, American Museum of Natural History, Vol. 6.
- Mindeleff, Cosmos. Navajo and Archaeology. Thirteenth, Sixteenth, and Seventeenth Annual Reports, Bureau of American Ethnology.
- Mindeleff, Victor. Tusayan and Cibola. Eighth Annual Report, Bureau of American Ethnology.
- Nelson, N. C. Archaeology. Anthropological Papers, American Museum of Natural History, Vol. 15.
- Nordenskiöld, G. The Cliff Dwellers of Mesa Verde, Southwestern Colorado; their pottery and implements. Translated by D. Lloyd Morgan, Stockholm, 1893.
- Parsons, Elsie Clews. Ceremonies. Memoirs of the American Anthropological Association, Vol. 4.
- Prudden, Dr. T. Mitchell. Archaeology. American Anthropologist, N. S., Vol. 5, No. 2.
- Russell, Frank. Pima. Twenty-sixth Annual Report, Bureau of American Ethnology.
- Spier, Leslie. Archaeology. Anthropological Papers, American Museum of Natural History, Vol. 18.
- Stevenson, Matilda C. Sia and Zuñi. Eleventh and Twenty-third Annual Reports, Bureau of American Ethnology.
- Voth, H. R. Hopi. Publications of the Field Columbian Museum, Anthropological Series, Vol. 3; American Anthropologist, N. S., Vol. 2, No. 2.
- Winship, George Parker. History. Fourteenth Annual Report, Bureau of American Ethnology.



INDEX

- Abo, 23, 64.
 Acoma, 59, 63, 68, 69, 71, 77.
 Acomita, 77.
 Adobe, 70, 71.
 Agave, see century plant.
 Agriculture, 38, 39, 140, 147, 181.
 Aguas Calientes, 65.
 Akol, 132.
 Alamillo, 64.
 Altars, 100, 104, 112, 113.
 Alvarado, Hernando de, 59.
 American Museum of Natural History excavating by, 36, 38.
 Amole, preparation of, 148.
 Ancient Peoples, 21-58.
 Animal gods, 119.
 Animals, 16, 17; creation of, 125.
 Animas, 25.
 Antelope, 16; altar, 113; corrals, 150; priests, 113, 115.
 Apache, 81, 121, 140, 142; burial customs, 150, 151; cattle raising, 150; ceremony, 172; election of chief, 169; gods, 178; plundering, 141; seclusion of girls, 172; war against, 133.
 "Apaches de Navajo," see Navajo.
 Apap, 132.
 Apuki, 132.
 Aravaipa Creek, 121, 141, 142.
 Architecture, pueblo, 71.
 Arizona Apache, 157.
 Arrowheads, 47, 49.
 Arrows, 100.
 Art, decorative, 90, 91; industrial, 154-166; symbolic, 91; use of, 101.
 Athapascan, fish taboo, 150; languages, 140; mother-in-law taboo, 167; myths, 179; sun worship, 178; tribes, 140-142.
Atlatl, 56.
 Awatobi, 63.
 Axes, 47.
 Aztec, 22; ruin, 25, 36.
 Balcony House, 34.
 Bandler, A. F., 101.
 Barrel cactus, 126.
 Basket Makers, archæological evidence regarding, 181; burial customs, 55; dress, 55, 56.
 Baskets, 44, 56, 127, 128, 130, 154, 158; ceremonial, 89; construction of, 56; decoration of, 90, 130; dyes, 155; method of manufacture, 127, 128, 130, 154, 155; ornamentation, 155, 158; storage, 130.
 "Bayeta" blankets, 164.
 Beads, 85; designs in, 166; method of weaving, 165, 166; sacred offerings, 171.
 Beans, cultivation of, 38, 39, 125.
 Bear, god, 119; dance, 176; society, 102.
 Beliefs, 118-120, 139, 177-180, repressed, 61.
 Belts, 131.
 Benavides, 147.
Bigelovia graveolens, 162.
 Bill Williams Creek, 143.
 Bison, 16.
 Black Gan, 178.

- Black Mesa, 62, 66.
 Black obsidian, 179.
 Black ware, 88.
 Blanket-weaving, origin of, 158;
 preparation of wool, 159, 160.
 Bourke, Capt., 81.
 Bow priests, 107, 108.
 Bows, 100.
 Braba, see Taos.
 Bread, paper-thin, 80.
 Brides, dress, 97; securing of, 167.
 Buildings, 24-31.
 Bullroarers, 114, 137.
 Burden baskets, method of manu-
 facture, 156, 157.
 Burial, caves, 55; customs, 52, 55,
 98, 150, 151, 168.
 Cacique, 101, 102.
 Cactus, 16, 126, 136, 137, 149, 150.
 California, 140; gold discovery in,
 122.
 Camp Dwellers, 140-182.
 Canadian River band, 140.
 Canyon-de Chelly, 22, 178.
 Carrizo Creek, 167.
 Carrying baskets, 158.
 Casa Grande, 23, 27.
 Castañeda, Pedro de, 63, 65, 70, 71,
 76, 79, 80, 84, 85, 97, 100.
 Cataract Canyon, 153, 147.
 Catsclaw, 130.
 Cavate lodges, 38.
 Cave, burial, 55; dwellings, 38.
 Cedar, 13.
 Ceilings, 29.
 Century plant, 14, 16, 137, 149.
 Ceremonial, baskets, 89; bull-
 roarers, 137; clowns, 137, 138,
 174, 176; corn meal, 101, 116,
 118, 137, dancing, 138, 171,
 172; fetishes, 171; games, 134,
 gans, 174; house, 135; lodge, 176;
 painting, 172; pollen, 171, 172;
 racing, 171, 172; rooms, 76;
 singing, 172.
 Ceremonies, Apache and Navajo,
 171-179; Hopi, 109-118; ka-
 china, 109-111; kiva, 112;
 movements in, 91; Papago, 136;
 Rio Grande, 101, 105; Taos,
 105, 106; Zuñi, 106-109.
 Ceremony, fire, 109; flute, 109,
 116; girls' adolescence, 171, 172;
 healing, 175; Lalakonti, 117;
 Marau, 117; Ooqol, 117;
 Sia Rain, 104; Shalako, 109;
 Vigita, 136, 137.
 Chaco Canyon, 22, 25, 36.
 Chama River, 61, 65; band, 140.
 Chamita, church at, 61.
 Chamuscado, Francisco Sanchez,
 61.
 Chief, Cochise, 141; Geronimo,
 141; Mangas Coloradas, 141;
 Whoa, 141; duties of, 133;
 election of, 169.
 "Chief," see Navajo Blanket.
 Chinlee Valley, ruins, 22.
 Chiricahua, 141.
 Church, established, 61.
 Cibola, 59, 63, 68.
 Cicuye, 65.
 Circular kivas, 76.
 Clans, 93, 107, 166, 167; functions
 of, 93, 94, 166; number of
 Navajo, 167; origin of Navajo,
 180; political, 167.
 Clay, as building material, 40,
 70; in pottery making, 40, 41;
 vessels, method of manufacture,
 85.
 Cliff Palace, 22, 31, 34.

- Clowns, ceremonial, 137, 138, 174, 176.
- Club, 100.
- Cochise, 141.
- Cochiti, 64, 68, 101; refugees, 66.
- Colorado Canyon, 98, 118.
- Colorado River, 11, 122, 143, 181.
- Coloradas Mangas, 141.
- Colors in weaving, 162, 164.
- Comanche, 65, 68.
- Communal houses, 68; hunts, 150.
- Construction of baskets, 56; sandals, 56.
- Cooking structures, 124; vessels, 41, 154.
- Corn, cultivation of, 38, 39, 55, 125; methods of planting, 147; preparation of, 79, 80; storage of, 79.
- Corn meal, ceremonial use of, 101, 111, 116, 118, 137.
- Cornstalks, use in dwellings, 145.
- Coronado, Francisco Vasquez, 59, 60, 82.
- Cotton, 45, 85, 125, 131, 132.
- Cottonwood, 16, 157, 158.
- Cottonwood Creek, 52.
- "Cows," 58.
- Coyotero, Apache, 142.
- Creator, 139.
- Cremation, 52, 168.
- Cruzat, Petriz de, 62.
- Cuirana, 103, 176.
- Culture Hero, 139.
- Culture, distribution of, 181; relation of, 182.
- Curing fraternities, 108.
- Cushing, Frank H., 78, 81.
- Customs, origin of burial, 168; social, 94, 167, 168, 169.
- Cypress, 13.
- 117, Oraibi, 112; snake, 109, 112-118; Ute, 176; Walpi, 112.
- Dancing, at festival, 175; ceremonial, 138, 171, 172, 174.
- Dasyllirion wheeleri*, see sotol.
- Dead, disposal of, 52, 55, 97, 98, 168, journey of, 179; offerings to, 169; souls of, 98, 118, taboo, 98.
- Death, among Hopi, 97, Zuñi, 98; of priests, 107.
- Decoration, basket, 56, 90, 130; dress, 152; kiva, 73; pottery, 40-42, 87, 88, 154; wall, 26, 32.
- Deer, 16.
- Defense, 25, 68, 99.
- "Delight Makers," 108.
- Déné, 140.
- Descent, 92, 132.
- Designs, basketry, 155, 158; beadwork, 166; pottery, 42-44, 87-91; weaving, 161-165, 181.
- Disposal of dead, 52, 55, 97, 98, 168.
- Doors, 29, 33, 38, 145, 146.
- Douglas spruce, 13.
- Dress, 55, 56, 97, 127, 151-154; decoration, 152; influence of railroads on, 81, 82; kachina, 110, 111.
- Drill points, 47, 49.
- Dry painting, 104, 171.
- Dumarest, Fr. Noël, 101.
- Dwarf pine, 13.
- Dyes employed in basketry, 155.
- Earrings, 85.
- Earth Magician, 139.
- Eastern Apache, 147, 150.
- Eastern Pueblos, hunting trips, 80, 81.
- Elder Brother, 139.
- Elk, 16.

- El Paso, 62.
 Entrance, means of, to kivas, 73.
 Esdzanadlehi, 172, 178, 179, 180.
 Espejo, Antonio de, 61, 77, 100.
 Estevan, 58, 59.
Estufas, 76.

 Feathers, as offerings, 171.
 Festivals, 105, 126, 136, 174;
 dancing at, 175.
 Fetishes, 119, 171.
 Fewkes, J. W., 34.
 Fire ceremony, 109.
 Firedrill, 49.
 Fireplaces, 33, 71, 74, 76.
 Fish taboo, 81.
 Flageolets, 51.
 Flagstaff, 11.
 Flora, 126.
 Flute ceremony, 109, 116.
 Food, methods of securing, 76,
 125, 147-151; preparation of,
 34, 80, 126, 147-151; storage
 of, 33, 34, 72, 79.
 Forests, 13.
 Fort Sill, 141.
 Fort Sumner, 142.
 Fraternities, curing, 108; leader-
 ship in snake, 118.
 Franciscan friar, 58.
 Fruits, 79.

 Galisteo Basin, burial in, 52;
 pueblo walls, 27.
 Galisteo Valley, corn storage in,
 79.
 Games, Apache and Navajo, 170;
 Pima and Papago, 134-135;
 women's, 171.
 Gans, 174, 178.
 German silver, 165.
 Germantown blankets, 164.

 Geronimo, 141, 169.
 Giant cactus, 126, 136, 137;
 preparation of, 149.
 Gila River, 11, 26, 13, 122, 123,
 128, 141, 142; irrigation along,
 39; pottery 43.
 Globe, Arizona, 142.
 Gods, 119, 178.
 Grand Canyon, 143.
 Grand Gulch, 51, 52.
 Gran Quivira, 23, 64.
 Great Basin, 181, 183.
 Guzman, Nuño de, 58.
 Gypsum, use of, 71.
 Hair, methods of dressing, 84, 85.
 Hano, 63, 68, 112.
 Harvest festival, 126.
 Havasupai, 143, 150; agricultural
 opportunities, 147; baskets of,
 158; cremation, 168; houses,
 145.
 Hawikuh, 63.
 Headbands, 131.
 Healing, ceremony, 175, priests,
 135.
 Hemenway Archæological Expedi-
 tion, 39.
 Hemes, see Jemez.
 Herding, 147.
 Hodge, F. W., 40.
 Hopi, 68, 72, 94, 110, 131; baskets,
 89; ceremonial circuit, 112;
 ceremonies, 109-118; cotton
 cultivation, 85; death, 97, 98;
 emergence belief, 118; fetishes,
 119; fields, 77; hairdressing, 84;
 houses, 71; kivas, 74, 76;
 language, 68, 93; marriage
 among, 95-97; pottery designs,
 88; pueblos, 59, 66, 67, 79,
 112; social organization, 92;
 trays, 89; war gods, 118, 119;

- weaving, 83, 90.
 Hotavila, building of, 68.
 Houses, 68-71, 123, 124, 140, 143-145; burning of, 168; ceremonial, 135; communal, 68.
 Huichol, 131.
 Hunting, 40, 80, 81, 126.
 Hyde Expedition, 38, 49.
 Images, 53, 119.
 Implements, tilling, 79.
 "Incest groups," 93.
 Industrial arts, 154-166.
 Initiation at Zuñi, 107.
 Irrigation, 39, 40, 77, 147, 183.
 Isleta del Sur, 62, 64, 67.
 Jaguar, 16.
 Jemez, 65, 67, 69.
 Jewelry, 154, 165.
 Jicarilla Apache, 140, 147, 154, 155; baskets, 154, 155; ceremony, 172; chief, election of, 169; dress of, 151; earth worship, 178; festival, 174; gods, 178, healing ceremonial, 175; houses, 143, 144.
 Juniper, 13, 158.
 Kachina, 178; abbreviated, 110; ceremonies, 109, 110, 111; clans, 93; dances, 103; dress, 110, 111; Niman, 109, 110.
 Keeper of Smoke, 135.
 Keresans, fetishes, 119; kiva decorations, 73; language, 67; villages, 64, 98.
 Ketticpawa, 63.
Kiaha, 130, 131.
 Kiakima, 63.
 Kino, Fr. Eusebio Francisco, 122.
 Kivas, 30, 73, 74, 76, 107, 115; ceremonies, 112; construction of, 72, 73; decorations, 73; entrance, 73; fireplaces, 76; use, 76.
Kiwitsiwe, 76.
 Kohatk, 133.
 Knife society, 102.
 Koshare, 103, 176.
 Koyemshi, 108.
 Kroeber, A. L., 93.
 Laguna, 68, 119.
 Lalakonti dance, 117.
 Languages, 67, 68, 93, 140, 142; variations in, 17-20, 142.
 Leggings, 85, 151, 154.
 Lightning frames, 114, 115.
 Little Colorado River, 11, 91, 142; pottery, 44; ruins, 23.
 Llanero, 140, 175.
 Lokadigai, see Carrizo Creek.
 Lokadigaihn clan, 167.
 Loom, 46, 47.
 Los Muertos, 39.
 Maam, 132.
 Macaw, 16.
 Mackenzie, 140.
 Maize, 125.
 Makai priests, 135.
 Mange, Juan Mateo, 122.
 Mano, 47.
 Manuelito, 169.
 Marau ceremony, 117.
 Maricopa, 122, 142.
 Marriage, among Hopi, 95, 96, 97.
 Martynia, 130, 158.
 Masonry, 71.
 Materials, building, 25-29.
 Matsaki, 63.
 Matthews, Dr. Washington, 177.
 Mendoza, Antonio de, 58.

- Mesa Verde, 31; mugs, 42.
 Mescal, 16.
 Mescalero Apache, 141, 147;
 baskets, 154, 155; dress, 151;
 houses, 143, 144; objects of
 worship, 178.
 Mesquite, 13, 148.
 Metates, 34, 47.
 Mexico, 70.
 Miles, General, 141.
 Mimbrenños, 141.
 Mimbres Valley, 43, 141.
 Mindeleff, C., 71.
 Mirage, 179.
 Mishongnovi, 68, 70.
 Missionaries, death of, 61.
 Moccasins, 85, 127, 151, 154.
 Moenkapi, 68.
 Moiety, 132.
 Mohave-Apache, derivation of
 name, 143.
 Morning ceremony, 172.
 Mother-in-law taboo, 167.
 Myths of Athapascans, 179.

 Naiyenezgani, 172, 178, 179.
 Nambe, 67.
 Narvaez, 58.
 Navajo, 81, 90, 131, 140, 154;
 blankets, 82, 152, 158-165;
 clans, 167; cornfields, 147;
 dress, 151, 152, 154; election of
 chief, 169; gods, 178; loom,
 161; man, 153; means of sus-
 tenance, 150; offerings, 171;
 pottery, 154; region occupied,
 142; silverwork, 165; winter
 dwelling, 146; woman, 159, 160;
 worship, 178; yarn secured, 164.
 Nelson, N. C., 53, 64.
 Newekwe, 108.
 New Galicia, 58, 59.

 Night Chant, 177.
 Niman kachina, 109, 110.
 Niza, Marcos de, 58.
 Nordenskiöld, G., 34.
 Nutria, 68, 78.

 Ochre, 158, 162.
 Offerings, at shrines, 112, 114, 115,
 171, 176; to the dead, 169.
 Ojo Caliente, 63, 68, 78.
 Old Cochiti, 62, 119.
 Ollero, 140, 175.
 Oñate, Juan de, 61, 70.
 Ooqol, ceremony, 117.
 Oraibi, 68, 70; clans, 94; sand
 painting, 113; snake dance,
 112-115; trays, 89.
 Oregon, 140.
 Organization, political, 169; social,
 92-94, 132, 166, 167.
 Ornamentation, basketry, 155,
 158; pottery, 42-44, 87-91, 154.
 Ornaments, 51, 85.
 Otermin, Governor, 62, 64.
 Ovens, 80.

 Painting, ceremonial, 171, 172;
 dry, 100, 104; sand, 113, 115,
 175, 176.
 Pajarito plateau, 22, 25, 52.
 Panther, 119; society, 102.
 Papago, 121, 123, 124, 183;
 animals, 125; beliefs, 139; cere-
 monies, 136; clothing, 127;
 food, 125; games, 134; hunting,
 126; population, 123; territorial
 districts, 132, 133.
 Paper-thin bread, 80.
 Passageways, 69, 70.
 Patterns, basketry, 155, 158;
 religious connotation, 164; weav-
 ing, 161-165.

- Peccary, 16.
 Pecos River, 11, 17, 65, 80, 82, 100, 142.
 Pekwin, 107.
 Pescado, 68, 78.
 Pestles, 47.
 Picuris, 65, 67, 80, 82, 84.
 Piki, see paper-thin bread.
 Pima, 121-123, 133, 143; animals, 125; baskets, 154; beliefs, 139; clothing; 127, divisions, 132; food, 125; games, 134; hunting, 126; population, 122; variety of culture, 183.
 Pimeria Alta, 121.
 Pimeria Baja, 121.
 Pinole, 126.
 Piñon, 13, 148, 155, 158, 162.
 Piro, 64.
 Plundering, by Apache, 141.
 Pojoaque, 67.
 Political organization, 169.
 Politics, of Rio Grande, 99.
 Pollen, ceremonial use of, 171, 172.
 Pookong, 113.
 Population, distribution of, 22-23.
 Pottery, 40-44, 85-91, 154.
 Prayer offerings, 104, 114, 171, 176; sticks, 104, 112.
 Pre-Spanish peoples, 181-183.
 Priests, antelope, 113, 115; bow, 107, 108; classes of, 103, 135; healing, 135; killing of, 61, 62; Makai, 135; representation of, 106, 107; Siateokam, 135; snake, 112-115; succession at death, 107; summer (see Koshare); "the above," 106, 107; "the below," 106, 107; training for, 135; war, 107; winter (see Cuirana).
 Protection, in warfare, 100; from wind, 146.
 Public performances, 115.
 Pueblo architecture, 71.
 Pueblo Bonito, 22, 25, 36, 43, 49, 51, 52.
 Pueblo Largo, 53.
 Pumpkins, preparation of, 79; raising of, 55.
 Puyé ruin, 25.
 Quail, 16.
 Quarai, 23, 64.
 Quirix, 64.
 Quivira, 60.
 Rabbits, 16.
 Racing, ceremonial, 171, 172, 175.
 Rain ceremony, 104.
 Rainfall, 11, 13, 14.
 Red ants, 132.
 Religion, 53, 135-139.
 Religious activities, 100-120; ceremonies, 171-179.
Rhus aromatica, see sumach.
 Rio Chama, ruins, 22.
 Rio Grande, beliefs, 118; bridal dress, 97; ceremonies, 101, 105; clans, 93; dress, 84; hair dressing, 85; kivas, 73, 76; pueblos, 22, 23, 38, 53, 67, 70, 99, 101, 108, 132, 140; war gods, 118, 119.
 Rio Grande River, 11, 60, 67, 77, 80, 141, 158.
 Rio Pecos, 23, 141.
 Rio Verde, 23, 38, 39, 143.
 Rito de los Frijoles, ruins, 22.
 Ruins, prehistoric, 22, 23, 25, 31-38, 53; restoration of, 34.
 Russell, Prof. Frank, 122.
 Sacks, yucca, 57.
 Sahuara, see giant cactus.

- Salinas, 64.
 Salt River, 11, 26, 39, 122, 142, 183.
 Salt Expeditions, 138.
 San Carlos reservation, 142, 143.
 San Carlos River, 141.
 San Cristobal, 64.
 Sandals, 45-47, 56, 127.
 Sandia, 67.
 Sand painting, 113, 115, 171, 175, 176.
 San Felipe, 64, 68, 69.
 San Francisco Peaks, 11, 110.
 San Gabriel, church, 61.
 San Ildefonso, 62, 66, 67, 69.
 San Juan, 11, 22, 61, 67, 69, 73, 74, 88, 142, 179, 181.
 San Marcial, 64.
 San Mateo, 11.
 San Pedro, 121, 142.
 Santa Ana, 64, 68.
 Santa Clara, 67, 69, 73, 74, 88.
 Sante Cruz, 121.
 Sante Fe, 52.
 Santa Rosa Valley, 136.
 Santa Domingo, 64, 68, 69, 97.
 San Xavier del Bac Mission, 121.
 Selenite, 72.
 Sevilleta, 64.
 Shalako ceremony, 109.
 Sheep, introduction of, 158; raising, 151, 159.
 Shelters, 72, 143-146.
 Shields, 100.
 Shipaulovi, 68, 70.
 Shrines, 100, 101, 112, 114, 138.
 Shumopovi, 68, 70.
 Sia, 62, 64, 68, 101-103.
 Sia Rain ceremony, 104.
 Siateokam priests, 135.
 Sichumovi, 68, 112.
 Silverwork, 165.
 Singing, ceremonial, 172.
 "Skeleton house," 98.
 Skin, use of, 144.
 Snake, altar, 113; dance, 109, 112-118; fraternity, 118; kiva, 115; priests, 112-115.
 Snares, 40.
 Sobaipuri, 121.
 Social, customs, 94, 167-169, organization, 92-94, 132, 166, 167.
 Societies, secret, 102, 103.
 Society symbol, 113.
 Socorro, 64.
 Sonora, 121.
 Sotol, 130.
 Spaniards, arrival of, 19.
 Spider, 179.
 Spruce Tree House, 22, 34.
 Squash, cultivation and preparation of, 39, 79, 125.
 Stevenson, Mrs. M. C., 101, 104.
 Stonework, 47-52.
 Storage, baskets, 130; of food, 33, 34, 72, 79.
 Sumach, 157, 158, 162.
 Sun worship, 178.
 Sweatbath, 176.
 Sycamores, 16.
 Tabira, see Gran Quivira.
 Taboo, dead, 98; fish, 150; mother-in-law, 167.
 Tanoan language, 67.
 Tanos, 64.
 Taos, 65, 67, 76, 80, 82, 84, 150, 106.
 Tesuque, 67.
 Tewa, 65, 119.
 Textile processes, 127.
 Teya, 65.
 "The above," priest of, 106, 107.
 "The below," priest of, 106, 107.

- Thunder Mountain, 59, 67, 100, 178.
 Tiguex, 64, 100.
 Tipis, 143.
 Tiponi, 113.
 Tobacco, 176.
 Tonto Apache, 145.
 Tonto Basin, 142, 143.
 Tonto Creek, 142.
 Tortillas, 80.
 Tovar, Pedro de, 59.
 Trade, 81, 130, 150.
 Trays, 89.
 Tularosa, pottery, 42, 91.
 Tulkepaia, see Yuma Apache.
 Turk, 60.
 Turkey, 16.
 Turquoise, 49, 51, 85, 165.
 Tusayan, 59, 63.
 Tutahaco, 64.

 Uipinyim, 135.
 Ute, 68, 176.

 Vaaf, 132.
 Vaca, Cabeza de, 58.
 Vacapa, 59.
 Vargas, Pedro de, 62.
 Vassals, treatment of, 61.
 Vegetation, 13.
 Victorio, 141.
 Vigita ceremony, 136-138.
 Village erier, 133.
 Villagran, 97.

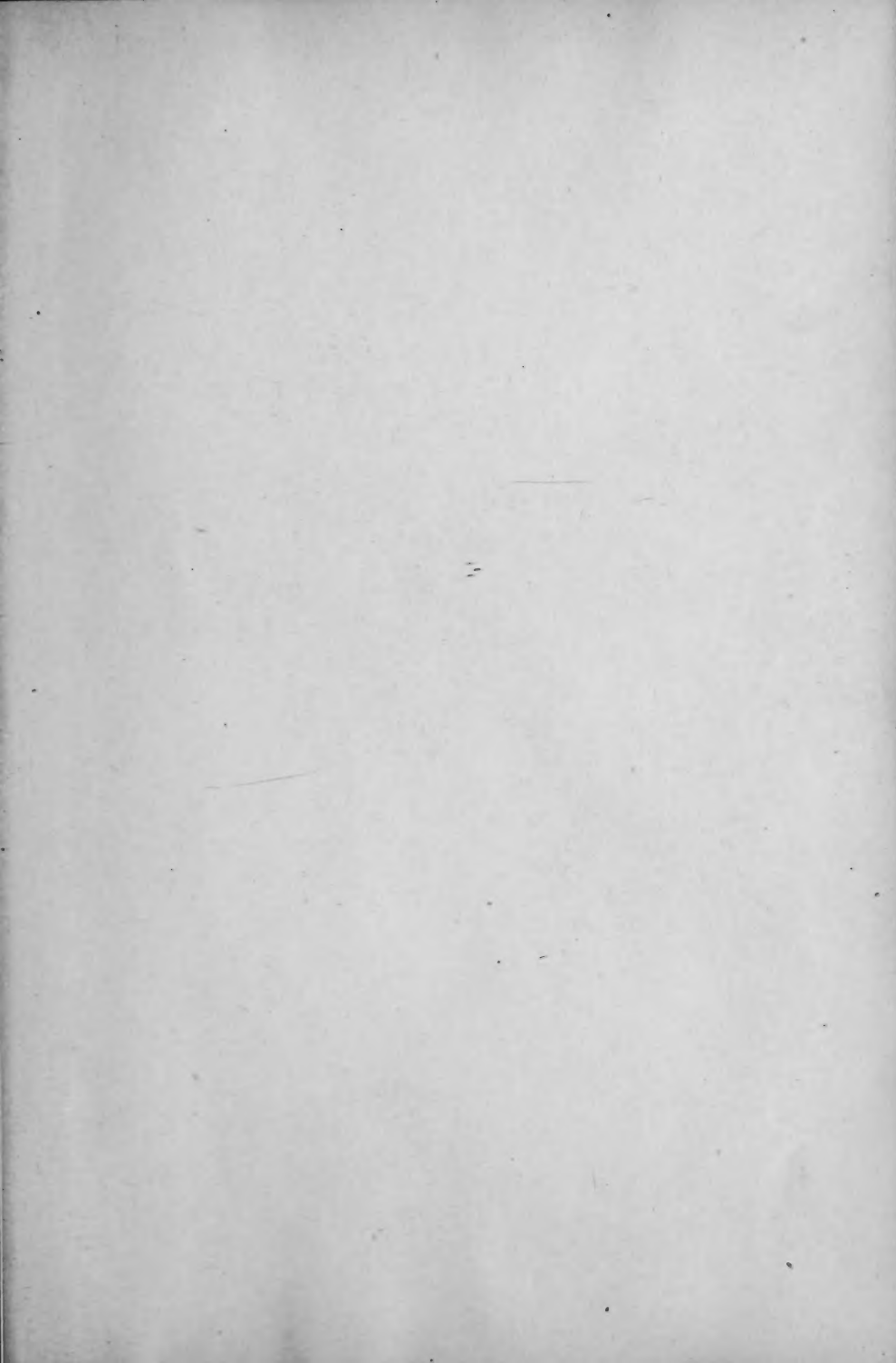
 Walapai, 140, 143, 145, 148, 158, 169.
 Walls, 32.
 Walpi, 68, 70, 112, 113, 115.
 Warfare, 99, 100.
 War, gods, 118, 119; priest, 102, 107; weapons, 40, 100.
 Watch towers, 25, 34.
 Weaving, 45, 83, 90, 158-162, 164-166.
 Weapons, 40, 100.
 Western Apache, baskets, 154; clans, 167; dress, 151; gods, 178; means of sustenance, 150.
 Wheat, 125.
 Whirlwind, 179.
 White ants, 132.
 White Mountain, 141.
 White Mountain Apache, 142, 145, 147, 166.
 White River, 142.
 Whoa, 141.
 Willow, 157, 158.
 Windows, 72.
 Wine, 126.
 Woodrats, 16.
 Wool, 85.
 Worship, 178.

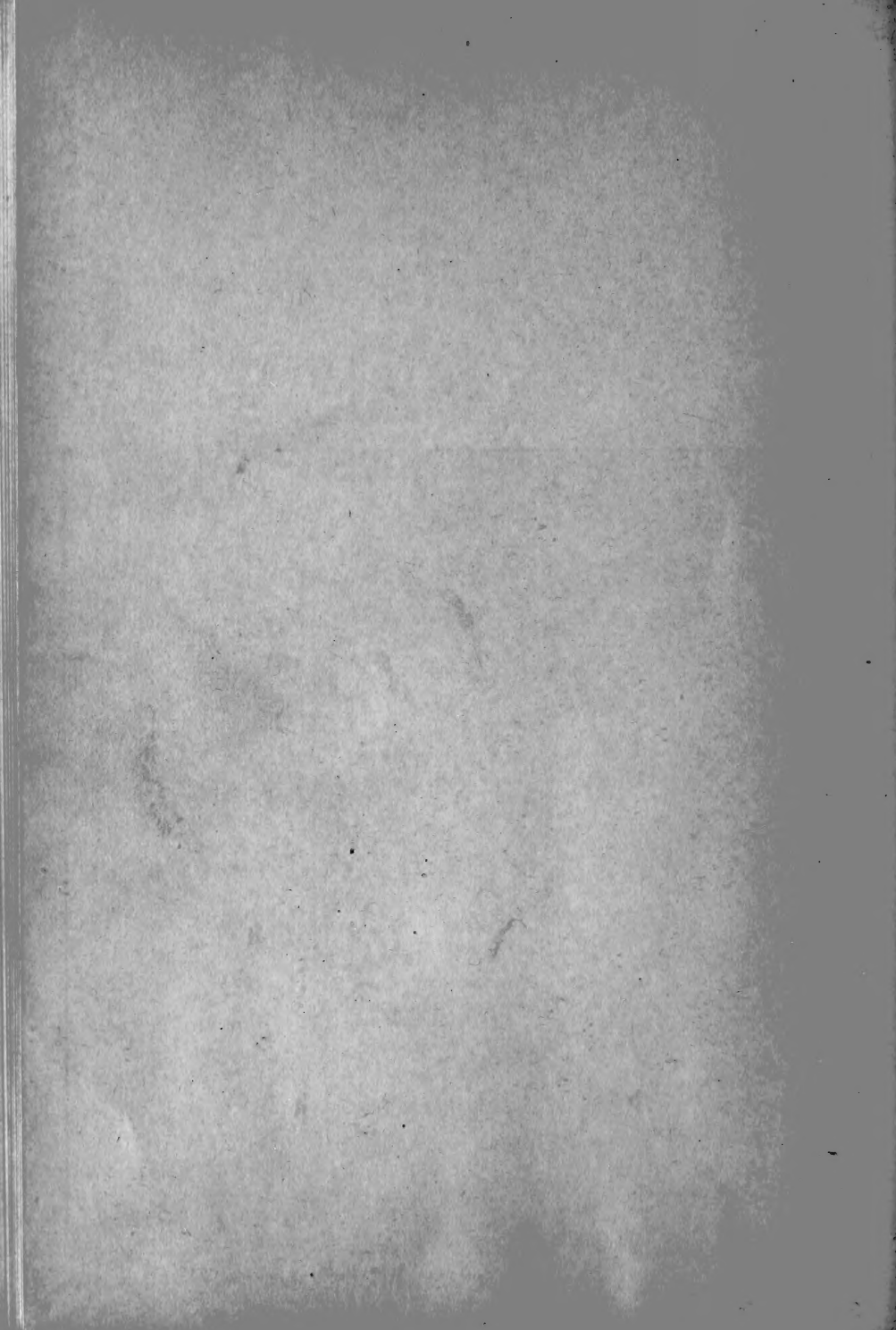
 Ximena, 64.

 Yavapai, 140, 142, 143, 154, 157, 158.
 Yaya, 104.
 Yucca, 16, 44, 45, 57, 89, 130, 156.
Yucca baccata, see amole.
 Yukon, 140.
 Yuma, 122, 133, 140, 142, 143, 145.
 Yuman, languages, 142; burial practice, 168.
 Yuqueyunque, 65.

 Zuni, 59, 67-70, 72, 78, 80, 81, 83, 84, 88, 89, 92-94, 97, 99, 106-109, 118, 119.







Goddard, I

Goddard, I

NOV 21

MAR 21

APR 26

OCT 23

AMNH LIBRARY



100074490